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# LONDON LANCET.

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SURGICAL AND CHEMICAL SCIENCE,

CRITICISM, LITERATURE AND NEWS.

FOR THE YEAR 1868.

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J. HENRY BENNET, M.D., and T. WAKLEY, Jr., M.R.C.S.E.

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# THE LANCET.

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J. HENRY BENNET, M.D., T. WAKLEY, Jr., M.R.C.S.E. EDITORS.

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## Lectures

ON

## SOME OF THE DISEASES OF THE FEMALE URETHRA AND BLADDER.

*Delivered at Guy's Hospital in May,* 1866.

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Gentlemen,—A large proportion of diseases of the female bladder practically fall under the observation of the obstetric physician, because, as you will readily perceive, the bladder in the female, from its propinquity to, and connexion with the sexual organs, is frequently exposed to injuries and diseases inseparable from their functions and uses. When you remember the violent and protracted pressure to which it is subjected during childbirth, its situation between the uterus on one side and pubic bones on the other, and the liability to the extension of both simple and specific inflammation up the urethra towards the bladder, it is, perhaps, rather a source of wonder that it is not more often affected than it really is. Still it frequently is in trouble, and, as before remarked, for the most part it falls within the province of the obstetrician.

Perhaps there has been a tendency to look upon the diseases of this organ as more productive of trouble than credit, on account of their chronic character, by which one's patience and hope have been wearied. And yet, altogether, there are few classes of diseases in which, more can be done by perseverance, and few in which, from the very annoying nature of the symptoms, we are likely to obtain more credit when they are cured. Hence it is that I have considered it might be advantageous to draw your attention to the subject.

But, first of all, I must request you to observe a feature of these diseases (which, indeed, is more or less common in those of the vagina, uterus, and rectum) requiring your constant care—namely, the difficulty of discovering the exact seat of the trouble; for often the patient complains to us of the other organs of the pelvis, and not of the one affected, a general forcing, or tenesmus, being frequently the result of the reflex irritation of any one of these organs, so as completely to mask their essential nature. And again, you will by no means infrequently find, after reflex irritation has been thus generally set up, that this irritation may remain in the part secondarily affected, while the original cause has passed off. It is, therefore, only by a careful analysis of the history that we can fairly unravel its true cause.

As is well known, the reflex tenesmus of the rectum produced by a fissured anus is often mistaken for uterine forcing; so, likewise, irritation of the urethra often produces a bearing down of the uterus, and sometimes even prolapsus. Whenever, therefore, a case of much tenesmus is before you, do not content yourself with the patient's diagnosis, but inquire into its commencement, and its orginal seat. Some difficulty will, doubtless, present itself to you in seeking this point, because many patients forget, in the trouble of the moment, the exact mode of its commencement; and this is particularly true if the pain have changed its seat. And you will also find, even at the moment of your inquiry, a difficulty of distinguishing from the sensations described the precise spot of annoyance; whether, for instance, the pain be in the urethra, or vagina, or uterus; whether, also, the bleeding which occurs in some conditions, proceed from the vagina or urethra. These points are important, and for their elucidation may require strict investigation by a thorough examination of each of the passages.

I may also here remark that diseases of the bladder and urethra are not so much under the influence of internal remedies as they are of topical, and therefore you will find that I shall lay corresponding stress upon the latter form of treatment. Not but that much can be done by opiates, rest in the horizontal posture, and avoidance of certain beverages and the correction of any condition of the system which may give rise to irritating urine. But, on the whole, local treatment in the severe forms is much more effective, though in some works treating of this subject you will find that the local remedies are considered too painful to admit of being used, or else they are in great measure passed by, so that the class of cases under consideration has been not so prolific of laurels as many others.

In bringing before you some of the diseases of the female urinary organs, I shall begin from without, and follow the passages inwards to the bladder.

*Vascular growths at meatus urinarius.*—And first I shall call your attention to those generally extremely sensitive red outgrowths of membrane of the meatus urinarius, called vascular growths.

You will find them readily, on separating the labia, by their bright red appearance at the meatus, either in the form of a minute polypus, or as a broad-based elevation of the mucous membrane, partly or wholly surrounding it, or passing some distance within. If you touch this, even as lightly as possible, in the majority of cases the patient will suffer the most acute pain; while in some few there will be no very great suffering. The difference depends, I believe, upon whether the sensitive papillæ (Pacchionian bodies) are enlarged or not. The growth in all cases is hypertrophy of the mucous membrane. In some the growth of vascular element is in excess; in some (the majority), the nerve-tissue; in others, the basement layer. Now, in those which are most sensitive you can without difficulty find the Pacchionian bodies hypertrophied, and very distinct. If they are removed by the snare, they will be found beautifully injected.

You will easily understand that, if these growths are so sensitive, much suffering is complained of during walking, coitus, micturition, &c. But, generally speaking, the patient very seldom is able distinctly to explain the seat of the distress. Sometimes the pain from micturition continues, setting up a forcing and bearing down, with a distress about the vulva; but, as a rule, the distress is not at first referred to the "water-passage." You must not therefore expect to be assisted much by the patient herself in the diagnosis. In such cases it is better to examine by sight, where you have any pain and difficulty attending micturition. Perhaps the most marked sign pointing to the urethra which the patient volunteers is, that after the completion of micturition a drop of blood follows; but in many cases this symptom does not occur. When it does, it is important to ascertain whether the blood really comes from the urethra, or from the uterus; because straining in micturition will sometimes cause a small, and indeed often a large, quantity of blood to flow from a malignant os uteri. The indefiniteness of the patient's description as to the seat of trouble was well illustrated in a young woman, of sedentary habits, who had for two years complained of uneasiness in the genitals. She could scarcely describe its nature, or where exactly it was, except that it was in front, and that when she leaned forward it hurt her. As I could make out nothing more from her description, I examined, and found one of those vascular growths at the meatus. It being of a polypus form, I removed it with a wire noose. She called two weeks afterwards to say she had entirely lost the annoyance, and I heard afterwards she had had no return of it.

As an instance of the vagueness and distress to which these growths may indirectly give rise, I may instance the case of a woman about sixty, who came to me complaining of incessant desire to micturate; severe straining; urine highly loaded with pus and mucus. To add to this, she had recently taken spirits of turpentine with a view to cure, and this doubtless had much increased her troubles. However, she told me she had very intense pain upon connection, for her husband still retained much vigor. This, of course, required examination, when I found that she had a large and unusually sensitive vascular growth at the meatus. This in a day or two I removed, directly after which she began to lose the above named symptoms, which in the course of two weeks had passed off, the urine recovering its natural condition. In this case a great amount of the distress was occasioned by reflex irritation, at first set up by the growth, but which she herself had increased.

The treatment of these cases is simple. Where the growth is of the polypus kind, it is best removed by a wire snare—as, for instance, by one which I have described in the "Obstetric Transactions," vol. iii., p. 346. For myself I prefer this mode because you can thereby secure its total removal, which you cannot always if you endeavor to seize it with the forceps and cut it off with scissors; for then not unfrequently the growth, always of a flimsy and vascular character, breaks down, so that it is impossible to lay hold of it again. If we attempt to cut it off with the scissors only, we may be more successful: but I have seen such efforts defeated by the drawing up of the parts at the slightest touch before it can be secured by this instrument. Under these circumstances I have found the most ready mode is that of dividing with the wire noose. Of course we may employ the galvano-cautery; but this apparatus is rather more troublesome to prepare. As a rule, after removal I prefer touching the part with a caustic, such as nitric acid, in the manner described below for the broader-based forms. Little or no bleeding ensues; that which does occur is readily staunched by pressure. In the more sessile forms I prefer the use of nitric acid, as a convenient agent, in the following manner:—Take a piece of soft wood, such as deal: nothing is more at command than a lucifer match. After cutting off the inflammable part, and rounding off the corners, this is dipped in nitric acid, and the superfluous quantities allowed to drain off, so that the wood should be only saturated with it. It can be then applied to the growth without any fear of its running over the parts not affected. Nitrate of silver is not to be relied on to destroy the base of the growth. Either the galvano-cautery or nitric acid may be used, so far as I have found, with the greatest amount of certainty.

Now these growths have a decided tendency to return, particularly if the growth has not been thoroughly destroyed or removed in some manner. Therefore in any case it would be well not to promise a radical cure too decidedly. I have seen a girl in whom the whole meatus was surrounded by a growth of considerable exuberance, and in whom the disease returned three times, which was, however, ultimately cured. These cases are certainly not malignant, but are rather to be considered as nævoid. I may remark, in conclusion, that the intensity of the pain bears no relation to the size of the growth; but the very smallest sometimes produce as severe, if not severer, suffering as others many times larger.

*Stricture of the urethra* is the next morbid condition to which I wish to direct your attention. It has been described as very rare; perhaps the superlative should be omitted. I have seen many cases of distinct stricture of the urethra. The seat of stricture was near the meatus, and in two appeared to have been the result of some injury or application to the urethra. In all, the symptoms were, as might be supposed, frequent desire to micturate, attended with great difficulty and forcing; a general feeling of bearing-down, referred by some to the uterus. The cause of all this was readily detected by examination per vaginam: no disease was found in the urethro-vaginal septum, nor at the meatus. The catheter being passed, great obstruction was experienced; indeed in one only a small conical bougie could be introduced through the stricture. The treatment in these cases was very effectual and permanent—by dilatation by conical bougies, requiring only a few passages of the instrument. It is possible to suppose a more obstinate form of stricture than these—as cicatrices—as the result of injury to the part; but I think it would not be difficult to cure them, like those in the vagina, by stellately scoring with a straight probepointed bistoury, and gentle dilatation afterwards. As a rule, we may say that simple strictures of the urethra are not difficult of cure.

*Urethritis.*—It is by no means a rare, I might almost call it a frequent occurrence, that the urethra becomes affected by inflammation in cases where vaginitis has resulted from either gonorrhœa, simple irritation or injury, or pressure from parturition, &c. It may arise from the irritation of acrid urine, highly charged either with lithates or with ammonia; but the most common of its causes are gonorrhœa and parturition. Sometimes the frequent passage of healthy urine alone, as in irritable bladder, will produce urethritis. In case of urethritis, simple, chronic, or acute, the pain, by the more intelligent of the sex, is referred distinctly to the water-passage, and to that only; but inasmuch as occasionally in chronic, and frequently in acute urethritis, the case is complicated with vaginitis, or other abnormal conditions, it is often difficult, sometimes particularly so, to unravel the symptoms, so as to place each to its respective cause. The annoyance complained of by the patient consists generally, not always, of a frequent desire to pass urine; always much pain, scalding or burning, or soreness in the course of the urethra in the act of micturition, lasting for some little time after; sometimes pain in the course of the urethra. The urethra is frequently tender when pressed during the vaginal examination, and a drop or so of purulent mucus may be made to exude from the meatus in certain cases, especially in the acute forms. When the catheter is passed, the patient, in the severer forms, complains much. In the chronic there is always more or less tenderness. In the former, where the vagina is also almost always affected, there is general redness of the vulva and vagina; but in the chronic this has generally subsided, so that only the edge of the meatus and the urethra remains red.

The treatment in the acute form must depend upon the cause, and upon the associated states of vagina &c. It will be treated in combination with them, by warm, soothing vaginal injections, and by rendering the urine as bland as possible. Where it is the result of delivery, these plans are more particularly to be zealously employed; and should there be retention of urine also, it will be our duty to pass the catheter, notwithstanding the pain it may cause, otherwise we may have a worse malady as the consequence, I need hardly observe that the use of opiates by the mouth is of great value in these cases.

But in the chronic form we must find other treatment, for it is very persistent, and although not seriously affecting health, except when combined with cystitis, yet it becomes very troublesome both to patient and practitioner. I believe we seldom, if ever, find any advantage in the employment of remedies taken by the mouth. In rendering the urine less irritating according to its condition in lulling the irritability of the urethra we of course shall find advantage, but beyond that my own experience shows none. But by local treatment the disease is as completely under our control as any disease we have to attack. We may employ either astringent solutions, such as alum, or sulphate of zinc solution, or even one of nitrate of silver; but I think you will prefer the use of these remedies in the more solid form. Nitrate of silver is very efficient, but rather painful; cast into small sticks and introduced into the porte-caustique, it can be applied for a short or long period to the whole of the urethra, according as is desirable. It will be generally found sufficient to merely apply it on the withdrawal of the instrument. The most convenient form of porte-caustique is one I use also for the canal of the cervix uteri—a silver tube, having a small caustic-holder on the end of a stillet sliding easily within. It is so constructed that the nitrate can only protrude a very short distance beyond the open end of the tube. The tube is passed up the nitrate being drawn within. As the tube is drawn out, the nitrate is pushed out, and thus the mucous membrane is touched lightly throughout. This mode is efficacious, but, at the same time, there is more immediate pain than with some other preparations; this, however, soon passes off, and in a day or two much relief is obtained. The application should be repeated for about a week, and a third time at the same interval if required.

Perhaps as efficient as any is the use of bougies covered with tannic acid. The best plan is to cover a medium-sized gum-elastic bougie with gum-water, and then to dip it into powdered tannic acid. The superfluous quantity is then shaken off, and the film allowed to dry. Before using it, pass it gently through the fingers to remove any roughness that may be present; then dip it into gum-water and pass it up the urethra, and leave it in ten or fifteen minutes. This may be repeated once a week. There is but little irritation generally; perhaps the next day some slight increase; but by three or four days the former irritation has much subsided, and then two or three applications at intervals of a week are sufficient to complete the cure.

Sulphate of zinc cast in sticks, such as you have seen me employ in cases of cervical leucorrhœa, may be used by simply passing the stick up the urethra, or as nitrate of silver in the porte-caustique, as above. We may thus speedily rid our patients of an annoyance which it were vain to expect removed by other than local remedies. I have employed each of these remedies repeatedly and could instance numerous cases of its satisfactory results. One may suffice.

A lady had, two years since, first of all during her pregnancy, suffered pain in the urethra, with much pain during micturition. This was not alleviated by delivery, but remained constantly annoying her to a very considerable extent; and the dread of passing urine had caused a constant nervous state. She had consulted her medical attendant, without relief. I found the urethra very tender when pressed on per vaginam, and on passing a catheter, she instantly said it touched the seat of her annoyance. I passed a stick of dried sulphate of zinc, allowing it to remain about five minutes. This caused her some pain at the time, which, however, subsided in two hours. From this time she had no suffering worth mentioning. A second application was made, and she was quite free from pain when I last heard of her.

There is, indeed, more difficulty in the detection of the ailment than in its treatment, so ambiguous are the phraseology and the ideas of many patients with regard to diseases of these parts.

You will occasionally see in elderly persons a violent attack of irritability of the urethra, suddenly induced. I can hardly tell under what head to class it, but I believe it may fairly come under that of chronic urethritis. There is a slight irritation of the urethra as a constant element, but at periods, once or twice a day, a severe irritability come on in the urethra after passing urine, which gives great annoyance and reflex irritation, with constant desire to micturate. At that time of life you will find a want of control over the semi-involuntary actions of the body; and in this instance, once a forcing and bearing down having been engendered, the patient seems to loose self-control; and, in the tenesmus which accompanies it, confuses in her mind the various symptoms—in fact, she declares herself unable to explain exactly her ailment. You can, however, gain some clue by beginning at the beginning, and making her recall to mind the early symptoms.

I remember one elderly woman who suffered a paroxysm lasting three or four hours every day of symptoms of forcing of urine, uterus, and rectum, who became quite wild during each attack. She could only say it was in the vagina; and that when it once began she was in such general distress that she could not bear herself. Upon going through her history, I found only some urethral irritation, and a little tenderness on pressure. The catheter having been passed, she complained of much pain, and upon inquiry, she said the instrument touched the real seat of the pain complained of at the time of attacks. Upon still further analysis, it seemed clear that the origin of the annoyance was in the urethra. It appeared that when considerable irritation was set up by the passing of urine, a kind of reflex action of the bladder, and then of the pelvic organs, was established, to control which seemed beyond the power of the patient. In this case I advised the use of the tannic-acid bougie and soothing remedies. The passage of the bougie gave great relief and she was much benefited for a considerable time while under treatment. No doubt irritation occurring in the other pelvic organs will produce this peculiar action; but in two cases I have seen it clearly arose from chronic urethritis. I may, in leaving this subject, remark that, in simple urethritis, such as is seen in the more chronic cases there is no irritability of the bladder of necessity. You *may* have it; but in that case it rather arises from more or less of cystitis accompanying it, or from reflex irritation of the bladder.

These symptoms of tenesmus arising from simple causes to a considerable extent resemble those of *polypus of the urethra*, particularly where the growth is situated at the neck of the bladder, in which position it occasionally is carried by the urinary current into the urethra, causing severe annoyance by dysuria, forcing, and generally some appearance of blood. As a rule, it may be said that bleeding in small quantities generally accompanies urethral polypus, not mixed with the urine, but commonly following it. You will see that here, again, the symptoms are very like those of calculus, especially a recent one and of small size. But the passage of a catheter or sound, coupled with digital examination in the vagina, will prove whether or no there be a calculus in the urethra or bladder; because a stone in the female bladder can almost always be detected per vaginam, at least the existence of a solid within it will be shown, while the catheter will tell you if that body be hard, like a calculus, or softer, as an outgrowth. These polypi, however, are so soft that the touch by the catheter cannot detect them. It will be necessary, when these symptoms exist, that we, after a trial of the tannic-acid bougie or other styptics has been made without result, dilate the urethra under chloroform, and examine carefully by the finger, and even with the eye, whether any polypus or outgrowth exist; in which case its removal by a wire snare, or torsion by forceps, or even by the finger-nail if it have a very thin pedicle, should be done at the time.

And this brings me to remark that incipient *epithelioma* of the mucous membrane of the urethra may produce bleeding, pain, and other symptoms of simple urethritis. If it be near the neck of the bladder then we shall have that organ in a state of irritation more or less, with an extrusion of blood following the flow of urine. Now, the diagnosis of epithelioma of urethra from urethritis is difficult, except that bleeding is rare in the latter. In polypus, where we may expect bleeding, the distress is more apt to become paroxysmal; where we have a moderate amount only of distress, with a considerable quantity of bleeding, we may suspect rather an epitheliomatous condition.

However, it is best in such a case to place the patient under chloroform, dilate the urethra, and pass up the finger, when irregularity of the mucous surface can be readily detected. Of course I am here alluding to incipient stages of epithelioma, for in the advanced state it is readily deciphered by vaginal examination of the urethra and bladder. It is by no means difficult immediately to dilate the urethra under chloroform, as has been shown by the removal of large calculi. I may here relate a case which will illustrate the mode of accomplishing it in epithelioma of the neck of the bladder and upper urethra.

The patient was about fifty years old, complaining of discharge of blood, which she thought came from the womb; she further stated that she lost it in gushes, and after passing water. This is a common description of bleeding from malignant disease of the uterus. The uterus on examination was, however, found healthy. Inquiries were then directed to the bladder, and it was found, after she had taken more particular notice, that the blood arose from the urethra. There was sometimes a considerable quantity, and some of it evidently came from within the sphincter, because she had the power of retaining it. Nothing could be felt by the vagina. She complained of frequent desire to pass urine, and the usual symptoms of irritation about the neck of the bladder. After trying various expedients, the urethra was examined under chloroform. This was done in the following manner, under full anæsthesia:—Weiss's two-valved dilator was first introduced, and then the three-valved one. After this, one of the smallest elastic water-bag dilators of Dr. Barnes's set was employed, and after about five minutes the second size. The urethra did not stretch to the full size of the dilator, but I was able to pass my forefinger with ease into the bladder, and examine its state for about two inches within. This enabled me to detect a superficial epithelioma on the right side, extending within the bladder one inch, and down the urethra half an inch. But little bleeding ensued, and I was at the same time able to apply nitrate of silver to the surface. This case shows that in the female our means of discovering and locally treating diseases of the bladder may probably be much increased.

It has been shown by Mr. Bryant, in the "Medico-Chirurgical Transactions" for 1864, that the urethra can be dilated rapidly, without any fear of incontinence after, even where the urethra has been distended to withdraw a stone two inches in diameter. We need not, therefore, fear that the introduction of the finger would lead to any troublesome result.

Ulceration of a syphilitic kind, running up the urethra into the bladder, causing very great distress, is occasionally seen. A patient was admitted into Guy's Hospital with a calamity of this kind. Urine was constantly running away from extreme irritability of the bladder, with severe scalding pain on passing it. The vagino-urethral septum was eroded from the meatus urinarius to half way to the bladder, and the mucous membrane of the urethra was abraded, readily bleeding on passing the catheter. She was emaciated from constant irritation and want of rest. I first of all applied nitrate of silver to the urethra, which was soon cured of its irritable state. This having been accomplished, one grain of morphia in solution, in the manner to be pointed out hereafter, was thrown into the bladder once a day. This produced speedy relief of the principal symptoms, and she was generally able to hold her urine for two hours; sometimes she could not for longer than an hour.

*Cystitis.*—We come now to a much more painful and serious disease—namely, cystitis. Perhaps there are few maladies which are attended with more distress and misery than this, in its acute form, by whatever cause produced.

Its causes are various: gonorrhœa, from extension of the inflammation along the mucous membrane; ordinary vaginitis, though rarely; calculus or foreign body introduced from without, such as fœtal bones in extra-uterine pregnancy; irritating secretions, as highly charged urine, whether ammoniacal or acid; pus from the kidney, or from openings into its cavity by abscesses, as in perimeteritic suppuration; retention of urine from any cause, as misplaced uterus; and lastly, though by no means infrequent nor of least interest to the obstetrican, the process of parturition. This latter affects it in three ways principally: 1stly, by retention of urine during labour; 2ndly, by actual pressure on it during that process; 3rdly, by producing retention afterwards. These are the chief causes of cystitis.

Like other diseases, we have the acute form and the chronic; and these vary in severity, and in the amount of constitutional disturbance accompanying them. With all we have a constant symptom—namely, frequent desire to empty the bladder; the frequency, depending upon the severity of the disease, affording a tolerably fair criterion of its intensity. The pain during and after the act, when the walls of the bladder fall together, is sometimes of the most intense character, attended by a semi-convulsive tremor, and an extension of the irritation of the bladder to the other pelvic viscera, whereby such a general forcing or bearing down is produced that the patient scarcely quits the chamber utensil. When the organ again begins to fill, the distress is equally great, but rather more of pain than forcing, so that the patient has but little respite from agony.

You will, of course, find a considerable quantity of mucus in the urine; and if the disease is of a few days' standing, there will be pus, greater or less, according to the intensity of the disease. The presence of blood is by no means constant, but you will occasionally find it.

The urine under these circumstances will become ammoniacal, and that generally early in the complaint; and if the bladder be not wholly evacuated, the contents assume a putrid odor. In the severest cases the whole urine will appear like a quantity of pus, smelling most strongly of ammonia, with putrid odor. If it is allowed to stand, there will always be found some tenacious mucus at the bottom, holding crystals of the triple phosphate and amorphous carbonate of lime, effervescing strongly on the addition of any acid. If micturition is very frequent, the urethra and vulva become very irritated, tender, and excoriated, adding still further to the distress of the patient. These symptoms, combined with pain over the pubes, much increased by pressure, and general pelvic distress, will lead you to the conclusion that inflammation of the mucous membrane of the bladder exists.

If these symptoms succeed an attack of acute vaginitis—that is, pain and heat in the vagina, scalding in making water, and after a few days a profuse yellow discharge,—then it is to be considered that cystitis has originated in this complaint. Whether it be specific or not it is impossible to say; but when the attack is very sudden, and attended with a very large quantity of yellow discharge, the inference is in favor of its specific origin. This inference, however, is by no means certainly correct; and therefore, unless we have a clear history of contagion, we should not allow any hint to pass us as to our suspicions.

If there has been evidence of peri-metritic cellulitis, with a suspicion of suppuration, as shown by severe persistent throbbing pain and pyrexia with swelling, and an attack of acute cystitis supervene, then it is that we may suspect that a communication is about to be established between the swelling and the bladder; and that it has taken place will be made certain by a sudden increase of the quantity of pus in the urine, and a subsidence of the local pain.

If a tumour of any sort existing in the neighborhood of the bladder, as extra-uterine, fœtation, ovarian, &c., become tender and painful towards the bladder, and if afterwards symptoms of cystitis arise, then we may expect a communication with the bladder to have commenced, and we should look carefully in the urine to ascertain whether any unusual characters are present.

If the complaint be of some standing, or have supervened suddenly after pain in the flanks and loins, then we may suspect the presence of a calculus or of highly gritty urine. The former can be detected by a catheter or sound; the latter by occular inspection.

Again, if these symptoms succeed immediately after labour, without any real retention, then it may be presumed that the urine was retained over-long during labour, or that the bladder was severely pressed upon during the passage of the head: the former may be known not to have been the case if the attendant had drawn off the water during labour. Should the vagina be sloughy also, we may suspect injury by pressure; but if the urine passes through the vagina, then it is clear that sloughing of the posterior wall of the bladder has taken place, and that a fistula has ensued. But if retention of urine after labour have occurred, and if the urine have not been drawn off within a reasonable time, and cystitis follow, then it is highly probable that the irritating effects of the urine and distension of the bladder have given rise to this calamity. Of course there may be a bladder already irritated by labour: but the retention of urine for over twenty-four hours in the bladder might either produce cystitis or exacerbate a slight amount of the disease into a severe form.

Now, retention of urine after labour is itself caused not unfrequently by a swelling of the urethra from head-pressure. Doubtless, at times the bladder is semi-paralysed, and unable completely to evacuate its contents, so that a portion is always left behind, facilitating decomposition of the urine. But I believe that by far the commonest cause is the swollen and tender urethra and neck of the bladder, which prevents the exit of the renal secretion. One of the old rules in midwifery tended very much to cause this trouble, for it was insisted that the catheter should not be passed before everything possible had been done to make the patient pass urine naturally; because, it was said, if the catheter once began to be used the patient would for a longer or shorter time require it. But, though this is an excellent rule in some cases of single hysterical girls, yet carried to the extreme, such as I have seen and heard of, it is productive of serious injury. For two cases have recently been described, where unassisted retention for thirty-six hours was followed by complete separation of the coat of the bladder, and, as you may judge, the life of the patient placed in very great jeopardy.

I would wish to impress upon you particularly that if the patient wishes to pass urine and cannot, whether it be eight, twelve, or eighteen hours after labour, it is best to draw it off: because, unless you are certain to the contrary, from having drawn off the urine, a large quantity may have been secreted during the end of labour, perhaps pretty completely distending the bladder before its conclusion, and thus your patient may be in considerable discomfort soon after labour is terminated. Indeed, after labour of any kind is over it is well to see if the bladder contain any urine, and, should it do so, to pass a catheter. However, should the bladder from any cause be full, with or without pain, and the patient be unable to empty it, I should advise you not to leave this for twenty-four or thirty-six hours, but to draw it off—better too early than too late, notwithstanding the annoyance of the operation to the patient. And here you must be cautioned against a deception. The urine may flow even freely, and yet a large quantity be retained, which, decomposing speedily, shortly produces cystitis. I have seen many instances where even experienced medical men had been deceived on this point. The diagnosis of the retention of urine is sometimes not easy unless we are always on the *qui vive*.

Frequently the intermittent pains of the contraction of the bladder are mistaken for after-pains. I once found a lady taking calomel and opium frequently for inflammation; hot stupes were on the abdomen. She was complaining much of very distressing forcing pain, with sweating; she had a furred tongue. On examining the abdomen with the hand, I found a large tumour up to the umbilicus. The nurse said she passed her urine very well, but she wanted to pass it often. As the tumour was larger than the uterus, even in metritis, I saw that it must be the bladder, passed the catheter, and drew off a chamber vesselful of urine. She was well immediately, requiring no more mercurials. This is not at all an uncommon case, the source of deception being chiefly from the passage of some urine. Indeed, it is seldom that retention is complete at first; it is only when the bladder is distended beyond all power of contraction that it is so, in which case, also, you will find no intermitting pain, but rather a continuous distress in the abdomen. Here, however, the passing *no* water will attract the nurse's attention, who will probably mention it, and thus you will naturally be led to examine the bladder. It is in the early stages that you may be off your guard, and you may allow all the mischief to be done before the cause is suspected. Let me therefore advise you to inquire very carefully into the state of the bladder after every labour, especially if it have been a severe one.

In the acute forms we find, of course, considererable constitutional irritation, which becomes much less as the disease assumes the chronic stage. In the less acute there is but little pus; the mucus is sometimes ropy, sometimes merely flocculent. There is a frequent desire to pass urine, which is the symptom usually complained of; a sudden desire to micturate, much pain if resisted; and a prolonged forcing afterwards.

It has occurred to me to see two cases of acute cystitis set up by vesical vicarious menstruation. In these the diagnosis was not difficult, because there was in one irregularity, and in the other absence of menses, the bleeding from the bladder occurring at the proper menstrual periods. It was attended with severe suffering, which scarcely had subsided till the next attack: indeed, in one it gradually assumed the chronic phase, requiring local treatment, although the menstrual flow had returned to its natural channel.

Thus I have endeavored to bring before you the principal features of this complaint, as also the causes. It now remains to allude to the

*Treatment.*—And I may remark here, severe and distressing as the disease is, it is, in a general way, very amenable to treatment. Perhaps there are few which, taking into account the distressing nature of the symptoms, one can do so much to relieve. But, as I mentioned before, the treatment must be rather local than otherwise.

In the earliest stages of the acute form, the best mode of proceeding is to place the patient at rest in bed; if possible, to give a hip-bath, with warm vaginal injections, followed by leeches to the vagina or lower abdomen if the pains are very severe. An opiate vaginal or rectal suppository of two grains of opium, once or twice a day, will much assist. The urine should be rendered as bland as possible by the administration of alkalies; opium frequently, and in full doses, according to the relief produced. After the earlier symptoms have passed off, and the muco-purulent secretion has commenced, we may begin the washing out of the bladder with hot opiate injections. At first the presence of the catheter gives much pain and distress; but after a few days this may be done without pain, and with much future advantage, for the act of washing out the bladder rids it of the alkaline state of the secretions, the mucus, and the entangled crystals. All these, by their retention, increase the original trouble to a degree you would scarcely imagine till you see the great relief obtained by ablution with an acidulated fluid. I first of all wash out the bladder with warm water, slightly acidulated with a few drops of nitric, hydrochloric, or acetic acid (a tablespoonful of vinegar to a pint of water answers very well) to the ounce. As much as the bladder, can bear should be used. This is allowed to flow out again; and, if it can be borne, another similar quantity is injected, and allowed to flow. After this, a grain of morphia, dissolved in one ounce of water, slightly acidulated with hydrochloric or nitric acid, should be thrown in, and allowed to be retained as long as it can be borne; the longer the better. This should be repeated, if possible, twice a day. The fluid should be thrown in very gently: an ordinary gum-elastic catheter will do, fitted to a syringe holding three or four ounces. It is well not to pass the catheter, far beyond the neck of the bladder, otherwise, if it touches the sides or back, the distress is great. In such case more force must be used upon the piston of the syringe. Now, although some temporary distress is caused by the operation, it will, as a rule, be found attended with so much benefit that it far outweighs the pain. Some authors have stated that the employment of injections has caused so much pain that it has led them to discontinue them. I can only speak from my own observation, which quite tends to the opposite. It may be that done for the first time it has acted so, but if they are continued this soon wears off, and in its place a marked improvement results. In any case the pain of an injection has scarcely ever been complained of by the patient as anything unbearable; nor in those cases where I have inquired has more pain been felt than ordinarily is endured by them in the disease.

In the early stages I have almost invariably used, as before mentioned, morphia, as least irritating to the mucous coats. In those cases where the urine is ammoniacal, nothing is more marked than the effect of thus washing out the bladder with acidulated warm water twice a day. Supposing it is a few days after labour, the catheter generally draws off the retained portion first; then the warm acidulated water is thrown in and allowed to run away; and lastly, the injection of morphia, which the patient is directed to retain as long as possible. Under this treatment a very considerable alleviation takes place immediately in all cases; and where the disease has been simple cystitis, the patient steadily improves. In those cases which have resulted from the act of parturition I always prefer at once to pass a catheter, to make sure there is no retention. This, of course, is to be done with care, keeping the point towards the anterior wall of the urethra so as not to make any more pressure on the posterior wall than is necessary, in case it might be in a softened condition, and easily broken down. Nor should you pass it further than needful; the moment urine flows, stop, so as not to annoy the tender mucous membrane. The catheter, I may here remark, should have larger openings than usual, so as to give speedy exit to the flow of the ropy mucus. Should it become choked by this it will give much less irritation and pain to thrust a small quantity of warm water by a syringe through the catheter than to withdraw it to clear it out; therefore it is well for you to possess a catheter and syringe fitted to one another. At the same time it is well that the syringe should be capable of throwing a continuous stream, with an easy action, to prevent jarring the bladder. If we find in these cases after delivery that there is a want of complete evacution of the contents of the bladder it will be advisable, at least twice a day, to draw them off, coupled with the washing out above advocated. If possible, and if the tendency to ammoniacal decomposition be very great, it would be better to repeat this every eight instead of twelve hours. The vagina will generally be in an abraded and semi-sloughy state in these severe cases; it will, therefore, be a great relief to wash it out also at the same time. Both can be accomplished without difficulty, the patient lying on the side. It is also much better to look for the meatus than to pass the finger into the vagina to feel for it, should there be very much tenderness of the parts. I have always found that, though distressing just for the moment, the relief often has been very marked for some hours.

Unless there has been serious pressure on the bladder during labour, you will find, by early and steady attention to these rules, that the disease is not permitted to become confirmed into chronic cystitis, but that in a few days the vesical mucous membrane, which if left to the continuous provocation of highly irritating fluids would have become most distressingly inflamed, will begin to recover its healthy state, so that after this point it may be treated as chronic cystitis.

Should cystitis have arisen from the presence of misplaced uterus, such as retroflexion and anteflexion, with complete or partial retention, the case must first of all be treated by evacuation of the contents of the bladder, and then by the restoration of the uterus. If then the bladder is not shortly relieved, it will be necessary to inject morphia as above indicated. In cases where this disease has arisen from the opening of an abscess &c. into it, although we cannot hope for much until the evacuation be complete, yet the use of morphia injected into the bladder is of great utility; afterwards we must treat the disease as one of ordinary chronic cystitis. But if, as has not unfrequently occurred, a foreign body is entering or has entered the bladder, then in our treatment we must be guided by circumstances. If the body—such as the larger bones of a fœtus—cannot escape from the urethra, we shall find serious symptoms quickly arise. It may be necessary either to open the bladder through the vagina or by an abdominal opening. Dilatation of the urethra, however, may give an opportunity to remove it without an artificial opening.

It is seldom that acute cystitis arises from the irritation of lithic acid in the urine. But a very severe form will always be liable to arise from the ammoniacal decomposition of the urine; as for instance, in cases of spinal mischief, even without paralytic retention. In both these instances the primary cause must be corrected as far as possible. In the former this is not difficult, but in the latter it is very troublesome; and the cleansing of the bladder should be done at least once a day, as above directed, and morphia injected, if not contra-indicated; for although the mucous surface of the bladder does not absorb rapidly, yet it does so to a marked extent.

The irritation of the bladder in cases of complete paralysis is a very distressing accompaniment, and after a time the urethra becomes much inflamed from the dribbling of urine which generally is present, and from the frequent passage of the catheter. In such cases it is best, after washing out the bladder, to leave some acidulus water, so as to counteract the alkaline tendency. The whole of the mucous should be drawn off, as far as practicable, so as to prevent the formation of ammonia. After a little improvement has taken place, these cases may be treated as in the more chronic severe forms.

And this brings us to the consideration of those cases in which the very acute symptoms have subsided, but where yet the disease is very distressing and severe. It is this form which is more likely to appear before you in hospitals. Frequent desire to micturate, the forcing attending it, and turbidly-passed urine, are the most prominent symptoms.

The general treatment must much depend upon the original cause. Opiates form the most reliable remedies: decoction of pariera; with either acids or alkalies, according as it is desired to check the abnormal state of the urine. In some of the milder cases the vegetable astringents, as uva ursi and gallic acid, do good; in others, the tincture of muriate of iron, with tincture of opium.

But most good will be done by the local treatment. I first daily empty and wash out the bladder well with acidulated water, and then leave an ounce of acid morphia solution of one grain to the ounce. If the condition does not much improve by this, I then venture to try an astringent, such as one or two grains of tannic acid to one ounce of water. At first this produces an increased contraction of the bladder, but it subsides after one or two applications. If the urine be putrid, I have found the employment of chlorate of potass, in four to five grains to an ounce of water, highly useful. I was led to its use in the following manner:—In a case of this nature of a very severe character, where life was in jeopardy by it, I ordered a gargle of chlorate of potass for the severely aphthous mouth. By mistake it was injected into the bladder instead of morphia. Immediately the putridity of the urine ceased, and the patient began to improve in general state and in local symptoms. So marked was this, that although she had up to that time been steadily going down, directly the injection was used the change for the better was most marked. In similar cases I have tried it many times, and always with good result. It may, however, give some pain if too strong.

If in some cases there is bleeding combined, I have used tannic acid in two to four grains to the ounce of water, or even tincture of muriate of iron, diluted with water. It might be supposed that much distress would ensue from the use of the latter drug, but with care it can be borne. Of course it is not allowed to remain in the bladder, which is even washed out with water afterwards. In a case of severe hæmaturia, with a large quantity of mucus, and very frequent desire to pass urine, admitted under me at Guy's, I tried gallic acid without success. One part of tincture of muriate of iron diluted with nine parts of water was then injected into the bladder, using a quantity at each time sufficient to well fill the bladder. It was allowed to pass away through the catheter. The bladder was then washed out, and a dose of morphia left behind. This was painful at first, but it appeared not to have been much more so than the ordinary pain. This was continued some time, with a slow but ultimately decided improvement of all the symptoms. At first probably a tablespoonful of blood passed daily, but when I last saw her there was none, though still some mucus. She left the hospital before she was quite cured, and the symptoms somewhat returned. However, upon readmission, she was again treated in the same way, and left quite free from cystitis. I was fearful at first that she had villous disease of the bladder, which is accompanied by much hæmorrhage. It was curious that upon one occasion eight grains of morphia, by mistake, instead of one, were injected after the iron had been used. The effect was very marked, but not enough to give rise to anxiety. How long it remained in the bladder did not appear. However, she was very much improved after this, and it seemed to have been for some reason decidedly beneficial. Nitrate of silver solution—thirty grains to the ounce as a maximum—may also be used in the chronic forms. It is best to wash out with water first, even in those cases which have not much mucus, otherwise the saline ingredients decompose the nitrate of silver, and it loses much of its power. This will, of course, to a certain extent, always be the case. I have used thirty grains without any severe pain, and with much diminution of the distress, after the first pain of the application had subsided. As with the tincture of muriate of iron, it should be used in plenty, and only for a short time, the bladder being washed out after for the first or second time.

By the daily use of these remedies you will, in the simpler forms of cystitis, get rid of the more acute symptoms shortly; but as regards the irritability of the bladder, which often succeeds this, we must continue the use of the morphia for some little time—every day, or as frequently as seems necessary.

Irritable bladder is a very frequent trouble to women. It is distinguished from cystitis by the absence of mucus in the urine. There is a frequent desire to pass urine, but seldom much distress afterwards.

Many things will cause this. Often it is the relic of cystitis—an irritability of the mucous membrane after its inflammation has passed away. Sometimes it is dependent upon the state of the urine, whether acidity or alkalinity be excessive. Frequently it arises from a nervous temperament, or from reflex irritation from disease of the rectum, uterus, or urethra. Where prolapsus of uterus exists it is not unfrequent: the bladder is drawn out of its normal shape, and by this excited to contraction. Again, when the bladder is pressed upon by the pregnant uterus towards the latter stages, its cavity is flattened, and its fundus is drawn up, so that an ordinary male gum-elastic catheter will, in some cases, scarcely reach the fundus. This is in contrast with the partial retention produced by the pressure on the neck of the bladder by the uterus, when it has just risen out of the pelvis, in the middle of pregnancy. In the latter months the bladder will not contain any quantity. The same, to a certain extent, takes place in advanced ovarian disease.

When the uterus is anteverted, especially if enlarged, or when, owing to the lax state of the vagina, it descends from its normal position, it frequently rests on the neck of the bladder, provoking the latter to contract. This is principally most annoying when the patient is in the erect posture, passing off when lying down. I remember a very marked case of this.

A woman complained of inability to hold her urine, making her as uncomfortable as if she had vesico-vaginal fistula. This had existed for some time. On careful examination I could find nothing but a lax vagina, the fundus uteri bearing down on the neck of the bladder. Thinking this to be the probable cause of the annoyance, I prescribed an astringent injection. The use of this was immediately followed by complete relief, which still continued when I last heard of her, some time afterwards. She was still employing the injection.

In many cases where pressure of the misplaced uterus is the source of the complaint, much good may be done by the recumbent posture, combined, if required, with the replacement of the uterus, according to its position. When this plan is employed the symptoms often disappear in a very short time. In the case of reflex irritation the plan will necessarily be carefully to inquire as to the seat of original excitement, as I have before pointed out: for the first exciting cause may have been cured, and the effect yet remain. Where pressure has flattened out the bladder, we cannot do much; but perhaps some help may be derived from an abdominal belt applied above the seat of the bladder, so as to take off some of the pressure.

*Malignant disease* of the bladder alone is not very common. It is a very miserable and distressing complaint, combining the symptoms of severe cystitis with those of malignant disease. Sooner or later we find blood in the urine, as before alluded to. We may have blood in the urine from renal mischief, from vicarious menstruation, from calculus and foreign body in the bladder, from inflamed mucous membrane of that viscus, from villous disease, from malignant disease, and from urethral polypus or other urethral disease. Now, how are we to diagnosticate each one of these causes? This is, indeed, sometimes very difficult. The catheter will help us to separate calculus and foreign bodies. If the appearance of blood has preceded cystitis, then it may be suspected that the blood comes from the bladder, especially if there be pain in the back and loins. This does not preclude the possibility of villous disease, because here the cystitic symptoms may not be developed before the appearance of the blood. If it be vicarious, then irregularity of the menses will guide to its probable origin. Where blood is present in simple cystitis, the diagnosis is very difficult at first: if the symptoms cease, we may expect the disease to have been simple. If malignant disease exist for any time, there will be thickening of the bladder, to be felt by digital examination per vaginam.

A patient suffered from severe cystitic symptoms, at the same time passing a large quantity of blood in the urine. There was nothing abnormal to be felt in the vagina; the sound detected nothing in the bladder. In the urine were found small whitish masses. These were examined by myself, and found to consist of bunches of villi, with a base malignant disease. I lost sight of her, and therefore do not know her end. The case is published in the "Pathological Transactions," with a drawing of the growth. This disease may extend over a considerable surface of the membrane, and generally, if not always, runs the course of the cancroid growths; so that beyond immediately checking, by perchloride of iron and other styptics, I am afraid but little can be done towards a permanent cure. I would employ either the perchloride of iron or tannic acid.

The following is an instance of malignant disease of the bladder:—A single lady, about forty years old, had been suffering a year or two under vesical symptoms. She had consulted two eminent surgeons, who, finding blood and mucus in the urine, with frequent desire to micturate, passed the sound, but could discover no calculus. After they had treated her for some time, I saw her, and, upon vaginal digital examination, immediately detected on the right side of the bladder a mass of the size of the pigeon's egg. The microscope showed that masses of dead tissue were flowing with the urine, which greatly aggravated the original disease. The washing out of the bladder with acetous water was attended with marked relief, so that she could hold her water for four hours, whereas previously it was passed every few minutes. Solution of morphia was left within, which doubtless assisted in the relief she experienced.

I had an elderly patient in the hospital suffering from a large mass in the side of the bladder, accompanied with symptoms of very severe cystitis, a great quantity of blood being mixed with the mucus and pus. The pain was exceedingly severe. After first well washing out the bladder with acidulated water, I ordered a solution of thirty grains of nitrate of silver to the ounce of water to be injected, and a grain of morphia in solution to be left in after the nitrate had escaped. There was subsequently rather severe pain for a while, but in a short time this abated. This treatment was followed up daily, and she derived considerable relief so far as local pains and desire to micturate were concerned. As before observed, it is proper to draw off these stronger injections within a given time, instead of allowing them to be passed by the patient, and afterwards a little warm water injected to dilute and wash out the remainder.

When, after a patient has been suffering from malignant disease in the neighborhood of the bladder, she is attacked with cystitis, we may fairly anticipate that the bladder has been invaded by the former complaint. The treatment here will be similar to that indicated in the cases above recited.

You will find the employment of opium absolutely essential to the treatment of this miserable complaint. It may also be given with great advantage as a vaginal suppository, or injected beneath the skin. Sometimes this plan will be more satisfactory than by the mouth.

*Retention of urine.*—Having already shown to you that retention is a cause of cystitis, I will now enumerate the principal causes producing retention of urine in the female.

1st. Pressure on the neck of the bladder or urethra, as by pregnant uterus, ovarian disease, misplaced uterus, anteversion, retroversion, fibroid enlargements of uterus, &c.

2nd. Foreign bodies, as calculus, &c.

3rd. Swelling of the urethra, as after labour; gonorrhœa, or other causes.

4th. Stricture of the urethra.

5th. Prolapsus of the uterus, as by distortion of the urethra.

6th. Paralysis.

7th. Hysterical nervousness.

In all cases of decided retention of urine it will be our duty at first to make out its cause by a full examination—I mean by vaginal examination and by the catheter. It may, however, be made an exception when it occurs in single hysterical girls or women. In these we may for a reasonable time try the effect of remedies, such as a warm bath, opiates, &c.; after waiting twenty-four hours without benefit, however, we had better draw off the urine by catheter, postponing the repetition of the operation as long as possible if we find it due merely to nervousness. But in the other cases it is advisable to make out at once the cause rather than run the risk of allowing cystitis to be excited. If upon the introduction of the catheter we find a hard body in the urethra, the cause is clear. If we find paralysis of the limbs, then we may place the retention as its accompaniment. If it occur after labour, then we have most probably a swollen state of the urethra, preventing the exit of urine. Prolapsus of the uterus will readily show itself if it be the cause; and if stricture be present the difficulty of passing the catheter will readily explain the retention.

I think the most common cause of retention of the urine arises from pressure on the neck of the bladder and urethra; and this, as before noticed, is more likely to be produced by enlargements situated in the pelvic cavity and at the brim than by those which, although of much greater size, have risen well into the abdomen, or have always been there. Now you will readily see that the pregnant uterus up to the sixth month is more likely to cause retention than afterwards, when it tends not so much to obstruct the flow of urine as to prevent the accumulation of it. Again, ovarian tumours in the pelvic cavity, as well as fibroids in the uterus, are more likely to obstruct in early stages than in the later.

If the uterus be in its normal position it is not very likely to obstruct, even if it be enlarged; yet you will easily understand that when it has become retroverted, particularly if more or less jammed down, the pressure of the cervix against the urethra will cause retention. Of course, in this position the uterus is in the pelvic cavity, and hence, unless the uterus have been previously retroverted, such an occurrence cannot take place after the sixth month of pregnancy, even if it can so late as that. If a patient has violently exerted herself during the middle months of pregnancy, and be seized with bearing-down on the rectum, with retention of urine and pain in the pelvic region, we may suspect that the uterus has become retroverted. It will not be difficult to recognise this by examination. At the upper part of the back of the vagina is a large solid mass while the os uteri is carried upwards and forwards towards the neck of the bladder, upon which it presses. The bladder also is drawn backwards, so that the posterior wall is curved inwards by its pressure. A tumour containing fluid is to be found above the pubes. The diagnosis is completed by drawing off with the catheter a considerable quantity of urine. In all these cases of retention we seldom see complete obstruction; a little urine is generally passing in driblets.

Now this sudden traumatic retroversion is very different from that which has come on by the enlargement of a pregnant uterus originally retroverted, or, as it most commonly is, retroflexed. There is no sudden invasion of symptoms; indeed, with the exception of the feeling of weight on the rectum and bearing-down, it seldom gives much annoyance till towards the fourth month, when, by pressing on the urethra by the cervix, it produces retention generally imperfectly at first until it becomes nearly complete. Examination of the abdomen, and per vaginam, of all the parts will reveal its true nature.

If the uterus be fixed by old adhesions, then the obstruction is severe, and the danger considerable; but generally the enlargement of the uterus in the upward direction, by distension of the anterior wall, gradually draws up the lower or posterior part out of the pelvis, and thus the difficulty is overcome. That the originally retroverted or flexed uterus is the cause of most of these obstinate cases of retention is probably the fact, as pointed out by Dr. W. Hunter and Dr. Tyler Smith. In these cases our attempts at replacement should be cautiously made, so that if any difficulty be felt, it is best to leave the case to nature, merely drawing off the urine if required. But violent efforts are most decidedly to be reprobated in any case, and it must be a very unusual one which would require induction of premature labour.

But there is a class of cases of retention in which, although the uterus is retroverted at the time, yet it seems highly probable that it is so secondarily, and is not the primary cause. It is curious that the last six cases I have seen have been of this kind. They occurred at about the second and third month of pregnancy, when as you are aware, the long diameter of the uterus is not sufficiently enlarged to become fixed in the antero-posterior diameter of the pelvic cavity. There had been for some days previously a partial retention, but the complete trouble occurred rather abruptly. In all the uterus was most markedly retroverted. In one in particular, (at the second month) the fundus of the uterus was driven down into Douglas's pouch, so as to distend the perineum, the bladder being enormously distended. Now although the retroversion was very marked, the emptying of the bladder enabled it to be restored by the finger pressing up the fundus with so little difficulty that it seemed in nearly all the cases to assume its natural position spontaneously. In all the cases no repetition of the retention occurred; all that was required was to keep the patient on the side, and empty the bladder by catheter the next day or two giving an opiate once or twice to diminish the forcing downwards induced by the former straining.

In any case of retention, before attempts are made to effect restoration of the position of the uterus it is best, you will easily perceive, to pass the catheter first; the impediment to its entrance is small, though, owing to the curve of the urethra being great, it requires management to pass it readily.

Now sometimes a fibroid tumour, retroverting the uterus by its weight, acts as in the above cases. For example: I was called to a person who I knew had a fibroid of the uterus. She was suffering very severe pain from retention of the urine. I found the large mass down on the sacrum, the os uteri almost above the pubes. I drew off her urine by the catheter, and then restored the uterus by help of the sound, from which time she has had no retention, and the uterus has risen above the brim.

Although tumours of the uterus situated in the pelvic cavity are more liable to cause obstruction than when above the brim, yet altogether it is seldom they cause retention of urine, although, I confess, it seems wonderful that they do not, considering how much pressure they exert. I remember many years ago seeing one in which both the bowels and urethra were so seriously impeded that a fatal result occurred by the fibroid being jammed within the pelvis so tightly that it could not be lifted out. When these tumours press the brim in front so as to cause retention, the catheter must be passed, as in a case of delivery when the head is in the same position; that is, by pushing up the mass, and carrying the point of the catheter forwards, and, of course, the handle of the catheter on to the perineum. It is well to employ a small gum-elastic with stillet, which should be withdrawn as the catheter passes upwards.

I have a patient who is obliged to have the urine drawn off sometimes twice a day in consequence of a firm fibroid resting on the brim, so much so that it requires a considerable sweep of the catheter to pass in front of the growth. It is a troublesome circumstance in her case that she cannot pass the catheter herself, although we have tried to teach her, as you may many, the mode of using the instrument.

With regard to the management of cases of retention from paralysis, they fall chiefly under the care of the general physician. But as respects the local treatment, I think the frequent emptying of the bladder, and washing it out with acidulated water, is productive of great benefit; and it is well to leave a little weak acid in the bladder in order to neutralise the ammonia. There is usually in these cases a certain amount of urine overflowing, so as to give the appearance of incontinence of urine. It is always advisable to pass the catheter to ascertain the real state.

There is occasionally seen a kind of retention of urine occurring after severe nervous or physical depression, which cannot be classed with those exaggerated kinds found in highly hysterical persons. It doubtless arises from a want of nervous power, and yields to treatment adapted to the improvement of the general health. Should retention continue after twenty-four hours, it is well to employ the catheter; but it should not be too often or too early employed unless cystitis be threatened. In one case I found the galvanic current through the pelvis and loins to act very well and immediately in overcoming the retention. It will also be proper in these cases to endeavor to improve the system by tonics &c.

Perhaps the cases which will justly perplex you most, as young practitioners, are those dependent on the *hysterical* temperament, because there are none which more than these require the exercise of sound judgment. For if, on the one hand, you are over-active in attention to the local symptoms you may, by employing the catheter establish the very trouble you are seeking to cure; while on the other hand, by permitting too long the retention, you may cause a serious injury to the bladder. Generally, however, the patient passes urine before it has produced any serious trouble in that organ; and you may, by diverting the patient's attention as much as possible from this symptom, and by attending to the general hysterical state, find these symptoms vanish sooner than if you had been more active in your local treatment. You may at least allow thirty-six hours to elapse in such a case, but much would depend on the quantity of urine secreted, to be ascertained by the hand placed on the abdomen at the pubes. You see therefore that it is very important to make a correct diagnosis: the state of the urine passed before the attack should be ascertained, if possible, that you may know if any real disease have pre-existed, and that no retroversion of the uterus from violent exertion is likely to have occurred, then, by the use of an opiate, a warm bath and a purgative, you will most probably succeed in removing the retention. After allowing the above-named time to elapse, it will, if retention still remain, be best to employ the catheter, if you have evidence of the full distention of the bladder.

Retention may also occur from the voluntary holding of the water for too long a period, whereby the bladder becomes over-distended, and loses its power of contraction. Cystitis frequently results from this. The urine must be drawn off, and the cystitis managed in the manner already indicated.

# Second Course of Lectures

ON THE

# ANATOMY AND SURGERY OF THE HUMAN FOOT.

*Delivered at the Royal College of Surgeons of England in June*, 1867,

By Henry Hancock, Esq., F.R.C.S.,

Surgeon to Charing-cross Hospital, and
Professor of Surgery in the Royal College of Surgeons.

## LECTURE IV.

Mr. President and Gentlemen,—Upon the table before you is a cast of a foot of a young lady, upon whom Mr. Solly operated on the 11th May, 1852.

The patient, fourteen years of age, sprained her foot whilst dancing. She was rather strumous, although her parents were healthy. At first she paid no attention to it, though after a little while she suffered excruciating pain at night. Mr. Solly saw her two months after the injury. She was then pale and thin, with a quick, irritable, feeble pulse, extremely nervous and anxious. The right foot was swollen across the instep to at least double the size of the other foot; there were two open abscesses, with nasty, unhealthy, purple edges, over the chain of cuneiform bones, which could be felt distinctly with the probe to be in a state of caries. Mr. Solly made an incision two inches long on the inside of the foot, directly through the abscesses down to the bone, and found the cuneiform medium detached and floating in pus. He removed this, and gouged away the greater portion of the internal and external cuneiform bones. She was much relieved by the operation; but on the 12th of June Mr. Solly, was obliged to remove more carious bone, principally from the metatarsal bone of the great toe. She went down to Devonshire, and gradually got well, so that in two years she was quite sound, and could dance all night long, and walk any ordinary distance. She can move her foot perfectly. The only thing she cannot do as well with this foot as the other is standing on the heel with the fore part of the foot raised from the ground. Mr. Solly, who has kindly furnished me with the particulars of this case, remarks: "I do not think that any instrument but the gouge would have produced so good a result. If the three cuneiform bones had been excised, there could not have been the reproduction of bone which has taken place, and the almost perfect foot."

Whilst the operation for complete resection of the os calcis was performed for the first time only thirty years ago, that for partial resection has been known for very nearly two centuries; for we read in Riverius that, as far back as the year 1669. Formius excised a portion of the os calcis for the purpose of removing a musket-ball.

The first case of complete resection of the os calcis that I can find recorded is one performed by M. Robert, of Prague, in the year 1837, wherein he removed the entire os calcis for necrosis from a child, aged four years, by an incision along the outside of the foot. The child recovered so rapidly as to be able to walk in a month, and the bone is stated to have ultimately become almost completely regenerated.

The second case, but the first ever performed in this country, is that operated upon by myself at the Charing-cross Hospital in May, 1848. The result was not satisfactory, as, after repeated attacks of erysipelas, I was obliged to amputate the limb.

This in the short space of three weeks was followed by the first successful operation of excision of the os calcis ever performed in England. It was performed in June, 1848, by Mr. Greenhow, of Newcastle; and two months afterwards, in August of the same year, Mr. Greenhow again excised the os calcis, and was equally successful; and on the 5th of December, 1848, the same year, Mr. Greenhow performed his third operation, with equally good results. In 1852, Mr. Greenhow operated for the fourth time; but the case did not progress favorably, and he was obliged to amputate the limb on the 2nd November, when the astragalus, cuboid, scaphoid, and cuneiform bones were found to be carious.

On October 9th, 1848, Mr. Paget excised the os calcis at the Cumberland Infirmary. "At the end of a year the patient found the foot as serviceable to him as the other."

Mr. Potter, of Newcastle, performed the same operation in two cases of caries: one in 1849, the next in 1851.

In the same year (1851) Mr. Gay removed the os calcis for caries at the Royal Free Hospital, and the patient recovered completely.

A case operated upon at St. Thomas's Hospital in 1851 by Mr. Simon did equally well, as did that of a girl, aged fourteen, operated upon by Mr. Lowe, of Congleton, also in 1861.

The success which attended these cases attracted the attention of surgeons in all directions—I may say in all countries. Mr. Hamilton imported the operation into Dublin in 1856. In 1857, Professor Carnochan introduced the operation at New York. Whilst in the same year, Mr. Atkinson, then residing at Jerusalem, excised the entire os calcis from Aboulafia, a Jewish rabbi of great distinction, who, during the Jewish feast of tabernacles, when in 1826 the city of Jerusalem was bombarded by the Egyptians, was wounded in his right heel by a fragment of a shell. After being confined to his bed for seven months, he so far recovered that for twenty-six years he enjoyed perfect use of his foot, visiting Europe, and frequently walking considerable distances. In 1853, a morbid growth sprang up by a pedicle from the os calcis. This was removed with a slice of the bone by Mr. Sim; but the disease reappeared, and resisted all applications and treatment for four years; consequently Mr. Atkinson removed the os calcis on the 1st of February, 1857. The patient progressed favorably; but the wound had not entirely healed at the date of his report, 15th March, 1857.

Surgeon Macleod excised the os calcis in the Crimea for a gunshot wound, and the patient recovered.

Whilst at home we find it adopted by Sir. W. Ferguson, by Teale of Leeds, Humphry of Cambridge, Cann of Hereford, Pemberton of Birmingham, the two Lansdowns of Bristol, Folker of Hanley, Gibb of Newcastle, Lunn of Hull, Erichsen, Holmes, &c.

The younger Moreau, although aware of the frequency with which the tarsal bones require surgical interference, and the comparative ease with which they may be reached, certainly did not realise the value of this process "Caries of the heel bone," he observes, "is by no means promising. If its inferior surface be cut away, the heel can no longer support the weight of the body, and the patient is obliged to lean thereafter on the anterior part of the sole of the foot till he accustom himself to the use of a high-heeled shoe. If the case be such that the tendo Achillis must be destroyed, it would be better to amputate the limb. I have performed this operation once only. I scooped out the whole inferior surface of the os calcis. I preserved the insertion of the tendo Achillis. The power of motion has been recovered, and a cure has been effected."

Lisfranc, on the other hand, though questioning whether a large portion of the posterior aspect of the os calcis might not be removed by cutting through the insertion of the tendo Achillis, adds, "that amputation is indispensable when the os calcis is too extensively carious."

Mr. Syme also lays down the rule: "If either the astragalus or os calcis be affected, of course the whole foot must be removed."

Liston's opinion was, that when the disease was not limited to the surface, excision of the tarsal bones "is not admissible."

Stromeyer records that "grazing shots, with exposure of the os calcis, require no operation, but heal readily under simple treatment; and that injuries of the tarsus generally are not very dangerous, and heal with unexpected facility, and without perceptible exfoliation, after extraction of the bullet." And he quotes a case wherein Dr. Frank removed a bullet from the tarsus which had been there for two years, and the patient did well.

Let us now turn to the opinions of those who advocate the operation of excision of the os calcis, and at the same time endeavor to ascertain the class of cases most adapted for its employment.

"I am quite sure," writes Mr. Holmes, "if surgeons knew how useful a foot may be left after the excision of the calcaneum or astragalus, we should see less of amputation of the leg."

Mr. Teale writes me: "The general result of these operations (excision of tarsal bones) has been very satisfactory. Indeed, I have adopted them as freely for disease limited to the posterior part of the foot as I have done Chopart's for the anterior part. There is, however, one condition necessary to the success of these operations—namely, that we select such cases of caries as are the result of pure, healthy (if I may say so) inflammation of ligaments, and not those which have originated in the cancellous structure of the bones, and which Sir B. Brodie attributed (as I think correctly, despite what is nowadays talked about strumous synovitis) to struma. In such cases, disease in one or two of the bones may have proceeded to abscess and caries; and when these bones are removed entire, the cartilaginous surfaces of the neighboring bones may appear healthy, but the cancellous structure has probably begun to be softened, and the disease will most likely proceed and render the operation abortive."

Dr. George Buchanan, of Glasgow, has kindly sent me the following notes on "excision of the os calcis." This operation has been so often performed that the attention of surgeons is directed solely to the cases suitable and to the mode of operation:—"*True* caries confined to the calcis is a rare thing. Circumscribed caries—often around a necrosed bit—admits of removal with a gouge; but more general, involving the whole bone, is rare, unless it involves adjoining bones; and this is true, even though the *intervening* joints and cartilages are *sound*. Let a surgeon who amputates through the ankle for disease of the astragalus (seemingly confined to that bone) make a longitudinal section of the foot with a saw, and in nine cases out of ten he will find incipient caries in adjoining bones, and the intervening joints sound. This I have very often proved; and this accounts for the frequency of return of caries after partial removal of the foot for caries. Hence, disease arising in the calcis from slight causes is always suspicious, and in the majority of cases requires amputation, But well defined and *chronic* caries is a suitable case. Circumscribed necrosis of the os calcis can be managed as in other bones; but sometimes it is so extensive as to make excision the simplest and best procedure. There is a condition of the os calcis not seemingly much understood, which I venture to call progressive necrosis—namely, beginning at the posterior part (often as a consequence of a slight wound or injury) and creeping forward. The bone is denuded of periosteum, and is felt hard and gritty with the probe. In the first case I met with I sawed off the posterior third of the bone; but the wound did not heal entirely, and I found the anterior portion had passed into the same state. I then excised the remainder of the bone, and found, on section, the bone hard and evidently of low vitality, though not quite dead. In a subsequent case I excised at the very first, when I detected the above condition, and with a good result. Nearly the whole circumference of the bone was denuded of periosteum, and little exfoliations were coming off, leaving the bone below still rough and hard."

I have given these notes at length, as they are undoubtedly of great value, and merit our best attention; though I fear that, if implicitly followed, but few cases of excision would ever be performed. I must confess that my experience is opposed to this doctrine; and I must also confess that I should pause long ere I amputated through the ankle for disease of the astragalus or calcis seemingly confined to those bones, unless there were other cogent reasons to urge me to do so independent of those manifested in the bone itself. And I cannot help thinking that in these and similar cases it is better to be guided by the history, collateral circumstances, and symptoms combined, than to rely implicitly on symptoms and abstract principles alone, however judicious those abstract principles may seem to be. Take, for instance, a very ordinary example. A man sprains his ankle. He pays no attention to it at first, but continues his work. In due course of time, after inflammation, suppuration, the formation of sinus, &c., we discover by the probe that the astragalus is in a state of caries. The disease appears to be restricted to this bone. The disease is the only sign of struma manifested by the patient either in his own person or in his family history. Are we to throw the original cause of the mischief, the general appearance of the patient, and the family history aside; and be governed only by the existence of caries, and the possibility that caries may be latent in other bones, and at once perform amputation without giving the patient a chance by the excision of the one bone of preserving the use of his foot? I can understand that some may consider it justifiable to at once have recourse to amputation, where the mischief has originated spontaneously without any assignable cause, when the constitutional taint of scrofula is generally apparent; but I am not ready to admit that caries *per se* is a sufficient justification for the undue sacrifice of a limb, even when occurring in a so-called scrofulous individual, especially if the exciting cause can be traced to injury, or that it is of itself a sufficient justification for abstaining from excision of the individual bone.

But let us turn to the cases wherein excision of the os calcis has been performed, and let us at the same time examine how far they support the opinions previously expressed.

Case 1.—R. W——, aged twenty-four, butcher; strumous. . Admitted into Charing-cross Hospital May 12th, 1848, for caries of the right os calcis with abscess. His left leg had been amputated three years before for the same disease of the knee-joint. Being very anxious to save his remaining limb if possible, I, after consultation with Mr. Avery and Mr. Canton, excised the os calcis. The patient did well for the first four days, then erysipelas set in, and recurred from time to time, until the man's health began to give away, so that four months after the operation I was obliged to amputate his limb.

Case 2.—H. H——, aged twenty, pitman; scrofulous. Admitted into Newcastle Infirmary under Mr. Greenhow June 15th, 1848. Eight weeks before had a nail run into his left heel. Abscesses formed, and were opened, and one continued to discharge. The integuments were much swollen and indurated, and fluctuation could be felt below the outer ankle. The joint admitted of every motion.

Aug. 15th.—The os calcis was excised. It was found to be extensively carious; the disease even extended across the articulating surface to the astragalus, a portion of which bone was also removed. Erysipelas attacked the limb repeatedly, and great care was required to get him through.

Dec. 29th.—Is able to walk with only a slight halt.

Case 3.—T. B——, aged twenty-nine, pitman, of scrofulous diathesis. Admitted under the care of Mr. Greenhow Aug. 10th, 1848, with disease of his left foot, principally affecting the os calcis, which could be felt through two fistulous openings. The disease commenced two years and a half ago with inflammation and abscess.

On August 15th a partial operation was performed. In a fortnight the wound was nearly healed, but erysipelas attacking it, excision of the whole os calcis was deemed necessary, and performed. The bone was carious in every part except at one or two points of its articular surface.

Oct. 17th.—Some slight sloughing of the integuments followed the operation, but the wound healed in due course, and on Feb. 10th, 1849, he left the hospital able to walk freely on crutches.

Case 4.—John R——, aged sixteen, a country lad, of delicate and scrofulous appearance. Admitted under the care of Mr. Greenhow Nov. 30th, 1848, with disease of the foot principally affecting the os calcis, which was greatly enlarged and carious. One or two sinuses at the apex of the heel were found to penetrate deep into the bone. Ankle-joint movable without much pain. The disease began eighteen weeks previously from excoriation of the heel occasioned by the friction of his shoe.

Dec. 5th.—Os calcis excised, and diseased portions of the cuboid bone also sawn off. The calcaneum was one mass of diseased bone; its shape was hardly to be recognised, so far had caries destroyed it. The patient had many severe attacks of erysipelas, but he subsequently walked freely about on his foot, and when seen seven years afterwards was using it as perfectly as could be desired. He ultimately died of phthisis.

Case 5.—A. L——, aged twenty-nine, glass-maker, of scrofulous diathesis. Admitted under the care of Mr. Greenhow May 13th, 1852, with disease of right ankle of seven months' duration, and following an attack of erysipelas.

May 18th.—The os calcis was removed, and found to be in an advanced stage of caries. This case did not progress favorably. The wound reopened, and on Nov. 2nd amputation was performed. The astragalus, cuboid, scaphoid, and cuneiform bones were all carious.

Case 6.—W. G——, aged sixteen, unhealthy, ill-nourished, scrofulous, admitted into Cumberland Infirmary under the care of Mr. Page, July 29th, 1848, with disease of right tarsus, the result of a slight injury he had received several years before. Suppuration and ulceration commenced only six months ago, since which time he has been unable to put his foot to the ground. The disease appeared to be confined to the os calcis, into which a probe could be passed at two distinct points.

Oct. 9th.—Os calcis excised. Astragalus and cuboid quite healthy. Inflammation of the tarsal joints retarded the cure, but at the end of a year he found it, "for all the uses of a foot, as serviceble to him as the other."

Case 7.—Thos. C——, aged fifteen, tailor, admitted into the Newcastle Infirmary, under the care of Mr. Potter, May 31st, 1849. Had been in bad health for two years, and had, he supposed, injured his heel by a tight shoe.

On the 3rd of July Mr. Potter excised the os calcis. The patient was seen in October, 1850, and had then just walked six miles without inconvenience.

Case 8.—H. C——, aged fifteen, of scrofulous constitution, admitted under Mr. Potter's care March, 1851. Five years before he sprained his foot; two years subsequently abscesses, followed by sinuses, formed round the ankle.

On March 11th Mr. Potter excised the os calcis. When seen some months afterwards a sinus remained, and the boy could not walk.

Case 9.—A house-painter, aged twenty-two, of fair complexion, pallid and scrofulous, admitted into the Royal Free Hospital, under the care of Mr. Gay, in March, 1851. He had suffered from pain in the heel and foot for more than ten years. "Now, however, it was found that the os calcis was extensively diseased, the probe, passing through fistulous openings, coming into contact with dead bone."

On the 20th of March Mr. Gay removed the os calcis. "The articular surfaces were quite eroded, and the body of the bone was in places deeply carious." In six months the patient could walk well.

**Case** 10 is that of a boy, aged ten, operated upon by Mr. Simon at St Thomas's Hospital on April 28th, 1851. He is described as of impaired health. The bone was found to be almost entirely necrosed. He was discharged cured on May 30th.

**Case** 11 is that of a red-haired, strumous mill girl, aged sixteen, operated on by Mr. Lowe, of Congleton, Dec. 12th, 1851. The patient had suffered for three years with disease of the left foot, which commenced with inflammation and swelling. The os calcis, when removed, was found to be in a carious condition, with the exception of a small portion on its outer side. The patient recovered completely; the wound had healed in less than two months, and he was able to walk without difficulty.

Mr. Pemberton, of Birmingham, has kindly sent me the particulars of the two following cases.

**Case** 12.—Jane D——, aged twenty-two, single, and healthy-looking, admitted under the care of Mr. Pemberton, at the General Hospital, July 28th, 1862. Fourteen years before she twisted her foot in a fall, and six weeks afterwards was again hurt in a similar way, and has continued to suffer ever since. On admission there was a large abscess over the outer aspect of the os calcis. The bone was extensively involved by advanced caries.

On Sept. 17th Mr. Pemberton excised the os calcis. The patient left the hospital cured on Nov. 17th. In a few months she cast away all assistance from crutch or stick, and on May 14th, 1866, Mr. Pemberton reports her to be well, strong, and able to walk with complete facility and comfort.

**Case**. 13.—H. P——, aged twenty-nine, a strong, healthy, married woman, was admitted under Mr. Pemberton's care on Sept. 10th, 1861, on account of necrosis of right os calcis, the result of an injury received seven months previously. The patient urgently desired the removal of the foot, as she was entirely unable to walk, and as attempts made on a previous occasion to remove the diseased bone had failed to afford relief.

On Sept. 28th Mr. Pemberton removed the os calcis. Six weeks afterwards she left the hospital on crutches. Mr. Pemberton remarks: "At the end of two years from the operation I am able to report that the wound is sound, and that she can walk any ordinary distance.

Mr. Holmes has also kindly furnished me with the particulars of the following four cases in which he excised the os calcis.

**Case** 14.—Boy aged four years and a half, operated upon Nov. 2nd, 1861; discharged Feb. 3rd, 1862. Perfectly recovered. Can walk almost as well with one leg as the other, and can hop down a good-sized room on the foot operated upon.

When seen Jan. 30th, 1866, he could walk without any perceptible limp, and could point the toes to a considerable extent. Could run, dance, &c., as well as any other boy.

**Case** 15.—Boy aged five, operated upon July 5th, 1862; discharged Sept. 7th. The wound was healed, and the boy beginning to walk with ease.

**Case** 16.—Girl aged seven, operated upon May 14th, 1863; discharged, wound not healed, June 30th. Able to walk tolerably with an instrument.

This girl was seen in Feb. 1866. The limb operated upon is smaller and two inches shorter than the other, one inch of which is said to be due to atrophy of the tibia, the result, no doubt, of disuse preceding the operation. The foot is drawn somewhat upwards and inwards. She can walk with an apparatus, but cannot hop nor stand for any length of time on that foot. The leg is also colder than the other.

**Case** 17.—A boy aged seven, operated upon by Mr. Holmes on the 18th February, 1865. The wound was healing, though slowly, when he was attacked with diphtheria, of which he died March 23rd.

Mr. Holmes adds: "The operation was in all cases performed on account of extensive caries, accompanied in some by partial necrosis (so-called 'strumous disease') of the os calcis. The operation consisted in the entire removal of the os calcis by the severance of all its ligaments. In the second case the lower surface of the astragalus was also removed with the chisel."

**Case** 18.—Mr. Mead, of Bradford, on March 12th, 1859, excised the entire os calcis from a gentleman, aged thirty, for caries. The disease appeared to be entirely confined to the bone, the articulating surfaces being healthy; but though the case went on well for a time, disease returned in the other tarsal bones, and he amputated at the lower third of the leg.

I have given the particulars of 18 cases, because, whilst facts are at all times stronger than theories, the facts which they disclose tend greatly to controvert the opinions which I have recently quoted. In 14 of these 18 cases the patients are especially described as being scrofulous, 2 in impaired health, the remaining 2 only as healthy at the time of operation.

Of the 14 the disease in 11 was entirely constitutional; in 1 it is said to have originated from a nail having run into the heel, and in two to have followed sprains.

Of these 11, 3 suffered secondary amputation, 1 on account of erysipelas, the other 2 from recurrence of disease in the remaining tarsal bones. One died of diptheria, which can scarcely be attributed to this operation in particular, and 7 recovered the perfect use of the limb.

Of the remaining 3, in which the exciting cause is stated to have been accident, 2 recovered completely, whilst the result of the third was doubtful.

I have thus accounted for 14 out of the 18 cases. The mischief in the 2 stated to have been of healthy constitutions, originated from accident. In the 2 described as in impaired health it was idiopathic. The operation, however, was successful in all four.

When these facts are made known and duly considered, they will, I trust, be the means of removing the dread with which these operations have been hitherto regarded, and that we shall hereafter have fewer examples of primary amputation for caries of the os calcis or other tarsal bones. Here we have 11 operations performed for caries of the os calcis, originating spontaneously in scrofulous individuals. In 2 only did the disease secondarily manifest itself in the other tarsal bones. In a third, it is true, amputation was necessitated from erysipelas; but what a case was this! The poor fellow had already lost one leg for caries of the knee-joint, and it was only at his earnest desire that I was induced to attempt the preservation of his remaining foot, so unpromising did the case appear, although doing well until taken with diphtheria. I will pass over the fourth case, and only enumerate the remaining 7, or 70 per cent. wherein the patients recovered, not with the preservation of a foot only, but with the preservation of the proper functions of the foot, the patients being able to walk miles, and some, we are told, to hop, jump, run, &c.

These examples, be it remembered, are not selected because they were favorable—quite the reverse; they are selected because they were most unpromising for operation. For if the opinions which have prevailed are correct, what cases can be more unfavorable for operative procedure than those originating spontaneously in the tarsal bones of scrofulous individuals, or those in impaired health.

To consider the general results of complete excision of the os calcis, I have been enabled to collect the particulars of thirty-four cases. Of these, twenty-five recovered completely, four suffered secondary amputation, one is reported as doing well, of three the result is not given, and one, though doing well as far as the operation was concerned, died of diphtheria. The cases recorded show that this operation has hitherto enjoyed a remarkable immunity from fatal results. In no single instance can we fairly assign death to its performance. We certainly cannot ascribe the case of diphtheria to it. And as for the only other case which I find recorded against it, who for one moment would be inclined to attribute to an operation a death from phthisis taking place seven years after that operation was performed, and seven years after the patient had not only recovered from the effects of the proceeding, but had also recovered the proper functions of the part? The gravest result, therefore, has been secondary amputation. Four cases have taken place against twenty-five recoveries, or sixteen per cent.—a very strong argument indeed against the primary adoption of that proceeding. For whilst I would again point out that excision of the os calcis has in no single instance resulted in death, I quite concur in the views expressed by Mr. Holmes, "that if these operations relieve the patient from present suffering, and restore him to the ordinary duties of life, they may often be advisable, even though they expose him to considerable immediate danger, and, further, leave him in a situation from which relapse is very probable." If, however, such relapse is rare, the indications for the operation are strengthened, and the more so the more rare the relapse may be. Here, I would remind you that of the eleven cases operated upon under conditions most obnoxious to relapse, that occurred only in two, or in eighteen per cent. I would also remind you, that excision of the os calcis is not a final or an irrevocable proceeding: it does not preclude, nor does it in any way diminish, the advantages or success of amputation when from relapse such proceeding is rendered necessary, as in no single instance, as far as I can find, has death occurred under such circumstances.

The following case, for which I am indebted to Mr. Delagarde, is to me most valuable and interesting, since, whilst it confirms what I have here asserted, it at the same time shows what surgery may effect even under the most unpromising circumstances:—

"W. G——, aged thirty-five, residing in Exeter, was admitted into the Exeter Hospital, under the care of Mr. Delagarde, suffering from caries of the os calcis on the inner aspect, just in front of the posterior tuberosity, to be felt through a sinus. The physicians report that he has tubercles in the lungs, but strongly recommend an operation, and the patient is urgent.

"A curved incision was made behind the inner ankle, and a second incision towards the heel. The flaps above and below this last incision were dissected back. The concave face of the bone was then gouged out until the carious portion seemed totally removed. This operation was performed on May 12th, 1859. After a few hours, distressing pain came on. In a week a large abscess appeared below the outer ankle. This was opened, with much relief. The wound healed; but other abscesses continued to form, and eventually the disease extended to the ankle-joint, the os calcis and astragalus becoming extensively carious.

"May 3rd, 1860.—The foot was removed by Syme's operation, but the lower flap was larger than usual. I dissected the os calcis out of the integuments, first from below, and afterwards, when the ankle-joint had been opened, from above. I had intended simply to have sawn off the malleoli; for the patient, who was a bootmaker, desired a very long stump for the boot he contemplated; but the extremity of the tibia was so soft that I sawed off the whole of the lower end both of that bone and of the fibula.

"I had great doubts as to the propriety of this operation," remarked Mr. Delagarde. "The lungs had been pronounced tuberculous, and he was excessively exhausted by pain and by purulent discharges; but I was again advised to operate by the physicians, and the patient settled the difficulty by requiring relief from pain, and any chance of life which could be afforded to him.

"He improved in health, immediately after the operation, and the wound healed readily. I saw him two years after. He looked very phthisical, but had been able to maintain himself by his trade. I have just heard (1866) that he was seen six months since, and looked no worse."

Strongly, most strongly indeed, would I urge these facts upon those who still deny the utility of excision of the os calcis as a standard operation; who would still rather sacrifice a foot which might thus be preserved, and restored to a state little inferior to one of perfection.

And equally desirous am I that all honor should be awarded to him who, by his judicious and skilful proceedings, first established an operation so creditable to British surgery upon a sure and firm basis, and who thus conferred so valuable a boon upon mankind in general. I therefore propose that henceforth excision of the os calcis should be designated by British surgeons "Greenhow's operation."

In this as in all other operations upon the foot, it is most important that the posterior as well as the anterior tibial artery should be preserved intact, if possible. When, therefore, we have reason to believe that the mischief is confined to the os calcis, the following procedure by Mr.

Simon, in 1851, is the best. He made a longitudinal incision from above the heel to the centre of the sole of the foot; from this, a second, at right angles directly outwards round the external margin of the foot to its dorsum; the two cuts forming the outline of a rectangular flap. By reflecting this, he immediately exposed the whole of the outer surface of the bone and its connections with the neighboring bones. The os calcis easily turned out, as it was entirely necrosed, except at its cuboidal extremity, where a small portion was sound. Even the tendo Achillis was detached, with the periosteum. Unfortunately we have no information as to the after history of this case, or whether the os calcis was regenerated, beyond the announcement that the boy recovered in two months.

The method recommended by Mr. T. Holmes is also very good. He makes two incisions at right angles down to the bone. One horizontal, on the supposed level of the junction between the astragalus and os calcis, starting at the inner border of the os calcis, dividing the tendo Achillis, and running forwards along the outside of the foot to midway between the heel and the projection of the fifth metatarsal bone, the situation, in fact, of the cubo-calcaneal joint. A second incision passes vertically across the sole of the foot, commencing near the anterior end of the first—that is to say, a little in front of the external malleolus, and terminating on the os calcis, near the inner edge. It was not prolonged into the grooved internal surface of the os calcis, in order not to wound the vessels. The flaps were then dissected back, and the joint between the calcis and cuboid opened.

# Original Papers.

## THE NATURAL HISTORY AND TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By Richard Barwell, F.R.C.S.,

**Assistant-Surgeon to Charing-Cross Hospital.**

### No. I.

The plethora of medical literature is such that it is the duty of every man to refrain from the printing-press unless that which he intends to publish is something more than a mere paraphrase of older work—unless he have something to teach that is worth the time of busy men to learn. In writing these few papers upon lateral distortion of the spine, I am aware of attacking a subject upon which a great amount of ink has been expended, whose literature is, nevertheless, in an unsatisfactory state—firstly, because the pathological views of authors are so varied and manifold; secondly, because not one of the theories, nor all of them put together, account for the occurrence of rotation in lateral deviation of the vertebræ, for the predilection of this condition to girls and young women, nor for its prevalence on the right side. Among these innumerable theories, we must reckon the weight of the head, overuse of the right arm, debility of general muscular system, weakness of certain spinal muscles, paralysis of respiratory muscles, spastic contraction of muscles, deformation of bones and intervertebral substance, inflammation, lack of nutrition, undue compression of intervertebral substance, &c. In fact, were we to go through them all we should never finish the mere list of supposed causes, which do not account for the effects and which again and again have been shown inadequate, because absent in so many cases. For instance, muscular debility is a favorite cause of spinal deformity; but the distortion occurs often in very strong, even powerfully, built young women, and such weakness, with weight of the head, &c., would cause posterior, not lateral, deviation while osseous or cartilaginous disease could not so constantly affect one and the same side.

I believe that in the course of the ensuing columns I shall be able to give a satisfactory explanation of this perplexed subject, and to show how, upon a correct pathology, a more efficacious and less irksome treatment is to be adopted than the present prevalent method of screwing the spine into iron splints. To do this fairly, however, we must take up the subject from early physiology, since by that means alone can we determine what forces act, and how they act, upon the vertebral column.

The spine of an infant is quite straight in all directions; while it is very young, and kept always recumbent, the back is perfectly devoid of any inherent bend, merely following the curves of the surface upon which the child lies. The pelvis is horizontal—i. e., the brim of the true pelvis lies at right angles to the lumbar spine. When the infant sits up on the nurse's arm, the back bends in one single antero-posterior curve concavity to the front, the pelvis still maintaining the same relative position.

When, however, the child begins to walk, a change takes place in all these postures. The thighs must take a new position, and lie in a line parallel with the body's axis. In doing this they drag on all the muscles passing from the anterior part of the os innominatum to the femur, on the iliacus, rectus, pectineus, and others; the pelvis, yielding to these forces, must necessarily receive a downward slope, and the sacrum must project backwards. The psoas, made tense by the same force, draws the loins forward, while the mass of lumbar muscles enforces that bend of the lumbar region necessary to compensate for the pelvic obliquity, and to preserve the body in equilibrio. It seems at first sight well to say that the dorsal bend is produced by the necessity of balance; but it will on consideration be seen that there must be muscular force to place the passive bones in the position which permits balance. This force is supplied by the abdominal muscles which pass from the pelvis to the walls of the chest, especially the external oblique and the rectus, the ribs acting as levers to transfer the power to the vertebræ.

The flexion backward of the cervical spine, also necessary for balance, is produced by the tension, employed for keeping the head erect, of those muscles which are attached to the occiput, as well as of those attached to the vertebræ themselves. I must here make an observation on the position of the head in man, and the small size of the ligamentum nuchæ, which is especially placed in animals to economise muscular power. Although the weight of the head is in man considerably forward, yet very little muscular power is required to keep it upright. The disposition of the upper part of the trapezius muscle running from occiput to acromion, is such that a small part of the weight of the shoulders is quite sufficient to counterbalance the forward tendency of the head without fatiguing the muscle, since no contraction, further than mere tonic tension, is necessary to permit the weight of the one part to act on the gravity of the other.

Thus the normal antero-posterior bends of the column are superinduced upon the previously straight spine simply by muscular force.[*] I wished therefore to determine, firstly, the amount of influence such muscles exercise, or, in other words, the degree of mobility which the spine, under ordinary circumstances possesses; secondly the particular muscles producing the movements in question; thirdly, the mode in which the usual movements of the body or limbs affected the spinal column.

In order to determine the capability of rotation in persons unaccustomed to gymnastic performances, I contrived a means of attaching a light upright rod to the upper end of the sterum and chest in such-wise that it should be quite uninfluenced by any movement of the shoulders, but should only and accurately follow the movement of the sternum from side to side. The upper end of the rod was, by jointed attachments, placed in communication with a dial-index. The person to be examined is seated on a chair, the pelvis well fixed, and, for greater security, the knees grasp between them a wooden pillar or bulk head, so that all twist of the pelvis is impossible. This instrument then will exactly indicate the amount of rotation of the loins and back, the neck not being included. A very general amount of this rotation is between 30° and 40° to either side. Occasionally one comes across persons who can only turn 25° each way, but it is more usual to meet with those whose power exceeds 50°. I myself can turn 56°. One of my subjects, seventeen years old, could turn 62° to each side—that is, more than one-third of the circle.

If we assume that the power of rotation is equally apportioned between the first dorsal and fourth lumbar vertebra (the last has no power of rotation, in all probability), it would be distributed among sixteen bones—that is, each would revolve upon the other 7° 75′.[†]

I tried also to measure the lateral curve which the spine without absolute effort could assume, but found it impossible to do so on the body itself. I therefore had photographs taken of a few people, chosen not from those whose spines were very flexible, but from those whom it was most convenient to photograph. One of these persons, a woman aged thirty-two, placed with the left shoulder against the wall, was directed to bend the spine to the right as much as she could without strain. On the photograph of this position the transverse axis of the pelvis was drawn, and a line at right angles to it marks the straight position of the spine: the curve from the top of the *sacrum* to the *vertebra prominens* was then measured; its length was 13·5 lines; the radial distance (we will suppose the curve circular) amounted to 12 lines. On the body of the patient, the length of the spine itself was eighteen inches, therefore the radius of curve measured sixteen inches. The dorsal and lumbar spine, then, in ordinary individuals, and without exertion, can bend laterally in a curve whose radial distance is eight-ninths of its own length. The curve, however, is not quite circular; the greatest amount of bend takes place between the seventh and tenth dorsal vertebræ.

I also wished to study the conditions under which the spine was placed in different actions of the limbs and body. I therefore procured a number of persons, chiefly artists' models, to go through various movements with the back naked. It does not seem advisable to transcribe here my voluminous notes of these experiments. Suffice it to say that in walking, sitting down, and rising again, and lifting even small weights, the spine bends from side to side. As might be expected, motions of the arms and shoulders influence chiefly the upper part; movements of the lower limbs, especially if the pelvis itself move, chiefly the lower part, of the spine. The former movements only affect the spine when either powerful or prolonged: for instance, a pound weight may be held in the hand outstretched without influencing the spine for a certain time, but when fatigue commences the column bends; a greater weight will at the moment of lifting cause bending of the column, produced in both instanes by the spinal muscles which lie at the opposite side to that which carries the weight. Any movement which shifts the weight of the body from one leg to the other causes lateral flexion of the lumbar and lower dorsal spine; for instance, walking, especially ascending a staircase, causes deviation to the right and left, in some persons as high as the seventh dorsal, in others only to the tenth dorsal vertebra. With every lateral movement a commensurate amount of rotation is combined; it does not appear possible to bend the spine sideways without at the same time rotating the vertebræ to a certain extent.

While bearing in mind the range, the constancy, and the necessity of these movements of the spine, let the reader consider the mechanisms which, under the name of supports, are fixed upon patients who betray any inclination to lateral curvature. A steel hoop, passing round the pelvis and abdomen, carries on each side an upright, which terminates in crutch-handles, under each shoulder; there is, moreover, at the back of this hoop one or more bars, bearing large steel plates, that enclose the back of the chest. It is evident that, if this instrument is to act at all, it must fix and keep the shoulders, back, and pelvis in a constant and unvarying position: there can be no leaning over to one side, no turning the body. The patient must always be in the condition of one whose back and loins are immovable and stiff. Walking itself would be a burdensome, an almost impossible, exercise. Fortunately, however, this implement can never carry out its objects. It is impossible to fix upon the chest, back, and loins a stiff, immovable apparatus, light enough to be carried. The parts are too rounded to afford sufficient *point d'appui;* and the necessity of movement is too urgent, the muscles too powerful. Anyone who has tried to hold the trunk, even of a baby, still when it was determined to move, must be aware of this fact. On the rounded parts about the pelvis no steel hoop can possibly be borne light enough to give such firm attachment to a lever as will permit its making efficient pressure on the curve. Therefore the machine is always being displaced, the pelvis hoop slips from side to side, the arms evade the crutch-handles, and all the joints, with their cunning little screws, get loose. If it be attempted to prevent such displacement by tightening the instrument still further, it either becomes unbearable or the steel snaps.*

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[*] The brothers Weber measured the thickness of different vertebræ at their anterior and posterior surfaces and found certain differences, which may be thus abbreviated—that the bodies are always thickest on the convex part of the curve. The normal bends of the spine are by many attributed to these differences; but if this were the true view, it would be impossible to account for the straightness of the infantile spine. Herr Hirschfeld, to whom future reference will be made, found no notable difference in the anterior and posterior thickness of the vertebral bodies.

[†] I have found that authors mention different parts of the spine as enjoying most freedom of rotation, their deductions being drawn from their ideas of the limiting powers of the articulating processes. My belief, founded on many observations on the living, is that the freedom of movement is pretty evenly distributed.

So some time ago a little girl, not quite eleven years old, pale, weak, and bearing the marks of suffering on her face, was led into my consulting-room. The spine was a little crooked, but she was suffering from the infliction of an instrument, weighing 1 lb. 12¼ oz., laced on the abdomen, screwed on the chest, and strapped on the shoulders. Her pelvis and blade-bones were galled. She was never free from pain and restraint; she was losing flesh and fading, and the spine becoming, I was told, more crooked. I removed the machine, ordered her to be left quite at liberty for a time, except that she was only to be allowed to remain erect for two hours consecutively, after that to rest for twenty-four minutes, and then have two hours more play, and so on alternately. When the health improved, the spine was quite manageable without any such machinery, and without sacrificing the patient's health.

In order, however, to explain the mode in which a lateral deviation of the spine can best be overcome, we shall have to enter at some length into the nature of the disease in its different phases. We shall have also to point out the causes of the distortion, and the reason why they affect almost exclusively one side.

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MEMORANDUM

ON

# THE NATURE AND THE MODE OF PROPAGATION OF PHTHISIS.

By WILLIAM BUDD, M.D.,

Consulting Physician to the Bristol Royal Infirmary.

> "*He that would follow philosophy must be a freeman in mind.*"
> —PTOLEMY.

[NOTE FROM DR. PAGET.]

*To the Editor of* THE LANCFT.

SIR,—The paper I send enclosed was received by me last December, in a sealed packet, from Dr. William Budd, of Clifton, with a request that I would take charge of it until he should direct me to break the seal. At his desire, I opened the packet a few days ago, and I now send you the contents, requesting the favor of their early publication in THE LANCET. They are an epitome of what Dr. W. Budd has been for some time intending to publish in a more complete form; but his intention has been frustrated, and is still delayed, by the engrossments of professional practice and other circumstances beyond his control.

You will at once perceive the originality of his views, and their very high importance if established. If the evidence now given of their truth be incomplete, it is at least abundantly sufficient to raise them out of the region of mere hypothesis, and ensure their careful consideration by pathologists.

In a letter to me Dr. W. Budd says he can show strong reasons for believing that his views on tubercle, with certain qualifications, apply to cancer also.

I am, &c.,

G. E. PAGET.

Cambridge, Sept. 30th, 1867.

THE following are the principal conclusions to which I have been led regarding Phthisis or Tubercle:—

1st. That tubercle is a true zymotic disease, of specific nature, in the same sense as typhoid fever, scarlet fever, typhus, syphilis, &c. &c., are.

2nd. That, like these diseases, tubercle never originates spontaneously, but is perpetuated solely by the law of continuous succession.

3rd. That the tuberculous matter itself is (or includes) the specific morbific matter of the disease, and constitutes the material by which phthisis is propagated from one person to another, and disseminated through society.

4th. That the deposits of this matter are, therefore, of the nature of an eruption, and bear the same relation to the disease, phthisis, as the "yellow matter" of typhoid fever, for instance, bears to typhoid fever.

5th. That by the destruction of this matter on its issue from the body, by means of proper chemicals or otherwise—seconded by good sanitary conditions,—there is reason to hope that we may, eventually, and possibly at no very distant time, rid ourselves entirely of this fatal scourge.

The evidence on which these conclusions are founded is drawn from the following principal sources:—

(*a*) Considerations based on the pathology of phthisis, as showing it to consist in the evolution and multiplication within the organism of a specific morbid matter, with a universal tendency to elimination and casting forth of the same, after the type of zymotic diseases generally.

(*b*) Actual instances in which there was evidence to show that phthisis was communicated from one person to another.

(*c*) The geographical distribution of phthisis in past and present times, and, especially, its great fatality now in countries which when first discovered by Europeans were known to be entirely free from it.

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* In the sequel it will be seen that there are still graver faults inherent in this mechanism. For the present above description suffices to show that, if it cannot keep spine motionless, it is useless; if it could keep the motionless, it would be unbearable.

(*d*) Its much greater prevalence in low levels and among crowded communities, and its entire absence, unless by casual importation, at very high levels,—conditions which are well known to rule, in the same directions, the spread of zymotic diseases generally, and especially of that group in which, as in phthisis, the morbific matter is cast off in a liquid form.

(*e*) Its very high rate of prevalence in convents, harems, barracks, penitentiaries, &c.—that is to say, under the very social conditions which are known most to favor the propagation of diseases of the zymotic group.

Among the data relating to geographical distribution the following striking facts may be here mentioned:—

1st. When the South Sea Islands were first discovered phthisis did not exist there. Since the aborigines have come into intimate contact with Europeans the disease has not only made its appearance among them, but has become so widespread as to threaten their extermination.

The contrast between original entire immunity and present extreme fatality is very striking, and can only be rationally explained by the importation of a new and specific morbific germ.

Try every other supposition, and the facts are inexplicable; make this one supposition and they are at once explained.

2nd. The late Dr. Rush, of Philadelphia, who made very accurate inquiries to determine the point, satisfied himself that when America was first discovered, phthisis was unknown among the native American Indians. Now it is very fatal to them. The very significant contrast here exhibited between the past and present history of these two races, in respect of phthisis, is exhibited at once, and at the present time, among the negro race in Africa, in different parts of the area of that great continent.

It is well known that negroes are peculiarly liable to phthisis.

Now, everywhere along the African seaboard where the blacks have come into constant and intimate relations with the whites, phthisis causes a large mortality among them. In the interior, where intercourse with the whites has been limited to casual contact with a few great travellers or other adventurous visitors, there is reason to believe that phthisis does not exist. Dr. Livingstone and other African travellers have given me the most positive assurances on this point.

The idea that phthisis is a self-propagated zymotic disease, and that all the leading phenomena of its distribution may be explained by supposing that it is disseminated through society by specific germs contained in the tuberculous matter cast off by persons already suffering from the disease, first came into my mind, unbidden, so to speak, while I was walking on the Observatory hill at Clifton, in the second week of August, 1856. The close analogy in many quite fundamental points between this disease and typhoid fever had often impressed itself on me with very great force while I was engaged in the study of the latter, and in the preparation of the papers which I have published on it. I now saw with a clearness which had never occured to me before, that, with the exception of the qualifications necessary for their application to a chronic disease—for the most part of slow evolution and indefinite duration,—the leading conclusions to which I had been led respecting the propagation of the fever, might be applied with the same strictness to phthisis also.

This idea had no sooner taken possession of my mind than considerations of great force and in overwhelming number crowded upon me in illustration of it.

In the course of the same evening I drew up some notes on the subject, and before the end of the month my views upon it had taken, in outline, the exact shape which they now have. The long interval which has occurred between the summer of 1856 and the present date has been occupied in collecting data bearing on the various questions raised by this new theory—in accumulating evidence of various kinds, and in examining and carefully weighing difficulties. During the whole of this long time the subject has scarcely ever been absent from my mind. The result has been only to confirm me more and more in the truth of my first conclusions. I earnestly hope that they will not be lightly rejected. At any rate, I can say that they have not been brought forward in haste or without due deliberation. I have, in fact, considerably exceeded the ten years, which, with a fine sense of what is due to such an enterprise, the Roman poet prescribed as the time to be given to every composition intended by the writer to endure.

Many causes have helped to prevent me from giving my views on this subject sooner to the world. Chief among them I may name want of time to put them into that scientific form, and clear logical order, under which alone an innovation so daring has any chance of being entertained, much more of being accepted, by the profession. This task, however, I hope to complete in the course of a few months. Meanwhile I have thought it well to place this memorandum, by way of record, in the hands of a friend, to be made public at any moment should occasion seem to require it.

**Manor House, Clifton, Dec. 1st, 1866.**

## CONSIDERATIONS SUGGESTED BY THE STUDY OF 100 CASES OF STONE IN THE BLADDER OF THE ADULT,

RECENTLY OPERATED ON,

By Sir Henry Thompson,*

**Surgeon-Extraordinary to H.M. the King of the Belgians; Professor of Clinical Surgery, and Surgeon to University College Hospital.**

THE following cases of stone in the bladder of adult patients are not selected in any way, but are those which my own practice has furnished during the last three or four years. No exception has been made, every case being recorded as it occurred; so that the last 100 adult patients on whom I have operated up to the time of my writing form the material for the remarks which I shall have the honor to submit to my professional brethren. I have taken these cases because all have been treated with the same instruments and on the same principle, and because the number is a simple one for percentage calculations, while it

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*** Read before the British Medical Association, at Dublin, Aug. 8th, 1867.**

is sufficiently large to warrant our dealing with it in relation to some important particulars in connexion with this malady.

First, let me call your attention to the fact that these are all *adult* cases, and for the most part adults of an advanced age. It is necessary to bear this in mind, because, as we all know, the mortality following the operation of lithotomy before puberty is very inconsiderable as compared with that which occurs in after-life. Hence when we learn the rate of mortality in any given series of cases which contains patients of all ages, we do not really obtain any information on the subject unless we are at least supplied also with the number of patients of an age below puberty included in the total.

Reasoning from some extended researches respecting the death-rate in lithotomy which I very carefully made a few years since, I may safely assume that the mortality following that operation in children is 1 in 14 or 15 cases; that in middle-life it is 1 in 6 or 7; and after sixty years of age, about 1 in 3 or 4 cases. These broad numerical statements will serve our purpose as standards of comparison in dealing with the series of facts to which I have now to request your attention.

Secondly, in regard to the 100 cases under consideration, I have this, also, to remark: not only are they adults and the majority of them old men, but, in point of eligibility and fitness for operation, they fall short, in my opinion, of the average of stone patients afforded by any single district. These cases have been furnished from all parts of Great Britain, and some few have come from distant parts of the world—for example, from India, the Cape, and Canada. For I may, perhaps, be permitted to say, that it has been observed that known experience on the part of an operator attracts a certain number of patients, in unusually bad condition and with large stones, who seek his aid as their last chance of recovery. This fact, complained of by operators at an early time, was never so influential as at present, from the numerous facilities for locomotion now existing; and the effect certainly tends, in a very appreciable degree, to injure the results of practice, if these are to be judged solely by a numerical statement of deaths and recoveries without reference to the severity of the cases.

With these preliminary observations, I will now proceed to state that the following 100 cases have been operated on in about three years and a half; that I have not refused to operate in a single case which has applied to me during that period; that I have employed lithotrity in every instance in which I felt it was safe and prudent to apply it; and have performed lithotomy in the worst possible cases, however bad, rather than leave the patient to the certainty of a painful and lingering death. Further, that I shall submit a table of the cases, as an appendix, which I will not occupy your time by reading; and associated with each case is the name of some gentleman who witnessed it with me, either in consultation or otherwise. Lastly, that in almost every case the stone itself is placed on the table for your inspection.

The following facts respecting these cases may first be noticed. Of the 100 cases, 84, or about four-fifths of the total number, were operated on by lithotrity and 16 by lithotomy. The mean age of the 84 lithotrity cases was 62¼ years; among them were no less than 21 cases of 70 years and upwards, 2 being upwards of 80 years of age. Among these 84 cases there were only 4 fatal cases. The lithotomy cases, 16 in number, had a mean age of 63¼ years. The youngest was 42 and the oldest 80 years. 6 were above 70 years of age, including one each of 77, 78, and 80 years. 6 cases were fatal. Of the entire 100 cases of operation upon unselected patients, having a mean age of 62¾ years, and submitted to either lithotrity or lithotomy, there were 90 recoveries and 10 deaths.

I think I may now venture to assume that these results are successful—perhaps as much so as any similar series of cases which have been authenticated as carefully and satisfactorily as this has been. And I am anxious to promote the habit of thus authenticating cases; not that I have any doubt whatever that any circumstance stated by me to be a fact would be for an instant called in question; but I feel very certain that any operator would prefer that statements of so much interest and importance as those must have which influence surgical practice generally should rest on authority which can be tested, especially as this is quite easy to accomplish, without in the least degree infringing the confidential relations which ought to exist between us and our private patients, and which should ever be strictly respected.

I shall now endeavor to embody the most important of the considerations which are suggested by the study of these cases in four propositions, and shall remark upon each as briefly as possible.

*The first proposition is,*—That lithotrity is the most successful operation for at least four-fifths of all cases of stone in the adult which come under the surgeon's notice at the present time: a statement which is more definitely expressed in the fact, that the rate of mortality for such cases in this series is barely 5 per cent.

*The second proposition is,*—That these successful results from lithotrity can only be obtained by performing the operation in accordance with certain rules which can be laid down.

*The third proposition is,*—That cases of calculus in which one of the two operations, lithotrity or lithotomy, ought not to be employed are exceedingly rare.

*The fourth proposition is,*—That by exercising an ordinary degree of vigilance for adult patients suffering from symptoms of urinary disorder, every case of calculus may be discovered in an early stage; may be successfully treated by lithotrity; and, consequently, that the operation of cutting for stone in the adult may be rendered obsolete, or applicable only for some very exceptional example which has been developed as the result of extreme neglect or ignorance.

The first proposition—namely, that lithotrity is the most successful operation for at least four-fifths of all the adult cases of stone which come under the surgeon's notice at the present day—is supported, I may say proved, by the 100 cases before us. A rather larger proportion, indeed, than four-fifths was dealt with in that series. This must be regarded as an immense advance on what has been in past time the practice in Great Britain. I doubt whether, if we were to take for any given year all the calculus cases occurring in adult patients in Great Britain, more than one-half would be found to have been submitted to the crushing operation. I think I may safely say that very nearly one-half of the adult cases are still operated on by the knife. At the same time it must not be denied that in the hands of surgeons who have not practically studied lithotrity with care, the cutting operation would probably still afford the best results. Yet how immense is the superiority of the crushing operation in practised hands. Four deaths in 84 cases of men averaging 62¼ years. I am satisfied that this result is attainable only with considerable experience and very careful attention to all the minutiæ of such cases. Yet the difference is so great that if even a much smaller success only is achieved, it is still superior to any which the knife can accomplish.

The next proposition is that lithotrity can be thus successful only when it is performed on a definite system, in accordance with certain practical rules which experience has determined, and which can be laid down.

But as a necessary preliminary to a very brief consideration of this topic, I would remark that, in every case of stone in the bladder, it is a matter of the highest importance first to make a correct diagnosis of the size and nature of the body which is to be removed, as well as of the constitution and condition of the patient; so that a judicious choice of the appropriate operation may be ensured. I have often had occasion to remark, that more harm may be done, and has been done, by the employment of the two proceedings—lithotrity and lithotomy—without due discrimination, than if lithotomy only had been resorted to in every case.

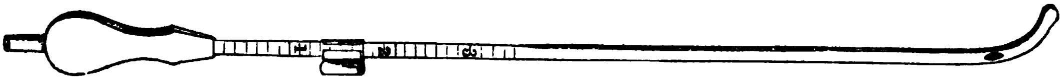
In making the diagnosis, the first fact necessarily ascertained is the capacity of the urethra. It is not common to find it deficient for the purposes of modern instruments, although it was frequently so regarded when larger and clumsier lithotrites were employed; at most a slight congenital narrowing at or near the external meatus may require a trifling incision to allow the lithotrite to pass with facility.

The size and form of the stone are next to be determined. The kind of sound to be used is by no means a matter of indifference. I should have thought it unnecessary to say this did I not know from experience how many surgeons still use a sound having the form of an ordinary catheter. Such an instrument does not admit of much lateral movement in the cavity of the bladder; while rotation is impossible. Hence it often fails to detect a calculus. An exploring sound should have a short beak, which can be moved with facility in every direction, and which can, therefore, be easily reversed or made to dip behind the prostate into the bottom of the bladder. I have made an addition to this sound, which I have found extremely useful in enabling me to ascertain the size of a calculus without using a sliding blade, or having recourse to a lithotrite for the purpose of measuring. Provided a suitable manipulation is employed, this can be accomplished with a very near approach to accuracy. The mode of using it may be thus described.

The surgeon, having struck the stone, moves the beak of the sound to the further end of it, and slightly taps its extremity. The sliding ferrule is then slipped down the stem till it touches the external meatus. He then slowly draws out the sound, making a series of little taps on the stone as he does so, until he reaches the near end of the stone, and the instrument ceases to elicit a tap, having passed over it. Meantime, keeping his eye on the sliding ferrule, he observes how much of the stem has issued from the urethral meatus during the progress of the taps. This sounding will furnish the length of the stone to one-eighth of an inch, as I have often demonstrated at the bedside in University College Hospital.

If a still more precise demonstration is required, a flat-bladed lithotrite may be introduced; the stone caught at least twice—if possible in two directions—and the measurements noted; and while grasped in the lithotrite, it should be moved about in the bladder gently, when, if another stone exists, it will be struck. This proceeding usually gives rise to more irritation then the method with the sound, but it produces results which are perhaps a little more precise. The note from the stone struck, and the condition of the urine, as well as the condition of the patient himself, will indicate with great accuracy whether the stone is an acid or an alkaline one—a compound of the urates or of the earthy phosphates. The oxalate of lime calculus is much more rare; unless its volume is small, the resistance it gives to the lithotrite will indicate its quality.

In discussing fully the question arising out of the constitution of the patient much time might be occupied, but it will be held to be undesirable to do so here. In few words, a quiet, unexcitable condition of the nervous system, with no extreme susceptibility to feverish attacks, are points in favor of his submitting safely to numerous sittings if the stone be large, and *vice versâ*. The fact of renal disease existing, in my experience, by no means contraindicates lithotrity. Several of the patients in my list had advanced kidney disease, and were passing much constitutional albumen.



**Exploring sound, with sliding ferrule and graduated stem, for obtaining the size of a calculus.**

Supposing that a uric-acid stone of about an inch and a half in the long diameter is met with, and all the conditions are tolerably favorable, there is no doubt that lithotrity may be performed with a good chance of success. I by no means affirm that such a stone of two inches in the long diameter should not be crushed, but, as a rule, I think lithotomy is the safer operation. The weight of the former will probably be about six to seven drachms. After the weight of an ounce is reached, we arrive at the catagory of large stones. If the stone is phosphatic, one of much larger size may be treated by lithotrity.

After these few remarks on the subject of diagnosis, I shall make a brief exposition of a few of those maxims which, in my experience and according to my humble judgment, embody the chief principles of successful practice.

1st. If the patient has never had instruments passed into the urethra before, it is as well to use a large flexible bougie or two, on two or three occasions, to observe the result both on the bladder and on the general condition. If fever is easily aroused by so simple a procedure, the question of performing lithotrity must be carefully considered.

2nd. The first sitting should be an extremely short one, and should consist in seizing the stone not more than twice (with the fenestrated instrument, only when large), and merely breaking it into several portions. The patient should remain in bed, and be admonished to pass water for the next twenty-four or thirty-six hours only while lying on his back. During the first two or three sittings I always enjoin this rule, esteeming it to be one of considerable importance. I endeavor to prevent the exit of débris during this period, in order that the fragments may become a little water-worn and their edges less sharp, and that the urethra may recover from any slight degree of irritation which the transit of the lithotrite may have produced. The fragments and the urethra are mutually better adapted to each other on the second or third day after the operation than on the day itself. I regard this practice as one which conduces in no small degree to prevent a painful, if not a dangerous, degree of irritation.

3rd. I am satisfied that the lithotrite should rarely remain at any sitting more than two minutes in the bladder. One minute usually suffices for three or four efficient crushings. Of course this is only possible with an instrument the construction of which admits of instantaneous change from screw to sliding movements, and *vice versâ*; and, for successful lithotrity, I do not hesitate to say that this is absolutely essential. I believe no lithotrite fulfils the various conditions required for rapid and easy working so well as that now made for me by Weiss of London, and in great measure from suggestions which have occurred to me in constant practice to meet varied exigencies as they have arisen. Besides the quality just referred to, this lithotrite can be turned in every direction with perfect ease, while it can be held more firmly, when so required, than any other instrument. Moreover, a small quantity of débris may be removed by it with facility and safety every time the instrument is withdrawn from the bladder. The flat-bladed lithotrite is unquestionably that which should be employed whenever it is possible to effect our object by its means, leaving the fenestrated instrument for exceptional use only.

4th. Not only by making the sitting short, but also by diminishing as much as possible the use of all instruments not absolutely necessary, we should avoid producing mechanical irritation of the bladder. For by far the greater number of these cases a simple flat-bladed lithotrite has sufficed for every operation, and no other instrument whatever has been necessary, excepting only an exploring sound; and I do not hesitate to affirm that very rarely indeed is any other required. Most unusual, even among these elderly patients, is it to observe any indication for the removal of débris by washing out—a process formerly regarded as an essential part of the proceedings which constitute lithotrity. The now well-known apparatus of Clover is occasionally valuable when the bladder, from exceptional circumstances, does not sufficiently expel its contents, and requires to be emptied of retained débris.

In regard to the practice of drawing through the urethra rough fragment of large size, I can only speak with the strongest reprobation. Not only must I regard it as injurious and dangerous, but as always wholly unnecessary. In thus acting, the injury inflicted is, in all cases, a purely gratuitous one. For whenever a fragment in the bladder is seized, a single turn of the screw suffices to pulverise it, and the product is at once in a condition in which it is harmless as regards the urethra. The perfection of lithotrity consists in easily reducing the stone to powder, and in allowing Nature to act by those forces which she possesses, and in the great majority of cases successfully applies to the removal of gravel and small calculi. In a word, all the dangers and difficulties occurring to the patient in lithotrity may be broadily referred to one cause—viz., mechanical injury to the bladder and urethra. The sources of this injury are two. The stone itself, and the instrument employed to remove it. To avoid these dangers and difficulties it is simply necessary—1st. To use the utmost gentleness and tact in the use of the lithotrite, which must be of the most perfect kind, and to be as sparing in the employment of all mechanical appliances as possible. 2nd. So to use such appliances, and so to manage the patient, as to reduce to a minimum those conditions of the stone itself which render it irritating. When these indications are fulfilled to their utmost, lithotrity reaches its highest degree of perfection. Thus, we shall aim at keeping the patient almost entirely at rest while the fragments are large and sharp, and we should reduce them to the form of powder as soon as possible subsequently. Sometimes it happens that cystitis is set up as the result of crushing a stone into large fragments, which does not readily yield to ordinary treatment. I have often found that, contrary to the usual rule, the patient is greatly relieved by a fresh crushing, which reduces these large and sharp fragments to smaller pieces, so rendering them less irritating to the bladder. Sometimes, too, under these circumstances we may go further, and by means of the flat-bladed instrument, we may, as an exception to the general rule, remove a considerable quantity of the débris when it is no longer well tolerated by the bladder.

5th. Few matters are of more importance, as regards the ultimate well-doing of the patient and the credit of the operation, than the removal of the last fragment. When a case of lithotrity draws to its close, and the symptoms have greatly diminished, but are not quite absent, it is often difficult to determine whether the bladder has been absolutely emptied of stone or not. On sounding, let us suppose that nothing is discovered; nevertheless, the patient feels a little pain at the close of micturition, and this act is performed with too great urgency and frequency. It is difficult to discover whether this is due to a fragment still remaining in the bladder, or to an irritated and slightly inflamed condition of that viscus or of the prostate, resulting from the presence of the stone and of the means which have been employed to remove it. If it is the latter, repeated soundings will only increase or prolong the morbid condition; if it be a fragment, one or two more soundings may be necessary to discover and reduce it. The real cause must, however, be discovered; but time will not allow me to enter on a complete practical consideration of this important point. One hint respecting a plan which I have found useful in this state of doubt is the following. Supposing that, after one or two careful explorations with the sound and with the small short-beaked lithotrite, the blades of which are easily reversed, and which can thus be made to traverse easily the floor of the bladder, nothing is found, I prefer to give up all interference, and let the patient have a week or two's freedom from instruments; but during that time he should on two or three occasions take a rough drive in an omnibus or other jolting vehicle. I know nothing which will so certainly increase the irritation if it is due to a fragment, while the effect will probably be very slight if none is present.

I now come to the third proposition—namely, that cases of calculus in which one of the two operations, lithotrity or lithotomy, ought not to be performed are exceedingly rare. I have already said that I have not declined a single case during the period in which these 100 cases were operated upon. On reflection, I might perhaps have done wisely to decline one case—a patient for whom I performed lithotrity,—a fatal one; and, further, I might have exercised a worldly-wise and prudent policy had I declined some five or six more whom I submitted to lithotomy. But then I believe it to be a dereliction of sacred duty to deny the one single chance of life to a suffering brother lest the statistical results of practice should be impaired. Not unfrequently have I consented with much reluctance to operate; but it has been difficult to withstand the entreaty of a poor fellow for whom death was imminent, and who, knowing fully all the risks, begged hard that he might encounter them, as his last and only hope. This recently occurred with a patient who, after seven years of suffering, came to me from the Cape—a mere skeleton worn out by disease. I declined, but offered an appeal from my decision, in the form of a consultation with my friend Mr. Paget. The refusal was confirmed, and, in despair, the patient sent for a well-known physician, and begged to learn why he should be denied the only hope of life, for which he had at so much cost of time and of pain crossed half the globe. The result was that we consented. I cut him, and he recovered. Is it not, then, almost impossible to say there is no hope? And if there be a single chance, how difficult to deny it! It was among such cases as these—cases of advanced age and of large stones—that I met the 6 deaths among the 16 of my lithotomy cases.

The fourth proposition is—"That by exercising an ordinary degree of vigilance for adult patients suffering from symptoms of urinary disorder, every case of calculus may be discovered in an early stage; may be successfully treated by lithotrity; and consequently, that the operation of cutting for stone in the adult may be rendered obsolete, or applicable only for some very exceptional example which has been developed as the result of extreme neglect or ignorance."

It may seem a bold assertion, that every case of stone in the adult may be treated by lithotrity. Depend upon it, this will be the case, and that its realisation is simply a question of time. I suppose no one will deny that it is an easy thing to diagnose the presence of calculus in an early stage, while it is yet small, and easily amenable to the crushing process. Very rarely does a calculus reach the size of a bean without giving marked symptoms of its presence; enough to send the patient to his surgeon; enough for his surgeon to suspect its existence. At all events, with anything like ordinary intelligence on the part of the patient and on that of his attendent, no stone should reach the weight of 100 grains, or measure an inch in its longest diameter; in other words, arrive at the size of a filbert without discovery.

Now, by way of proof, I wish to call your attention to the striking fact that among the 84 cases of lithotrity, *all such stones were successful cases.* Each one of the fatal cases were stones of much larger size, occuring in patients worn out not merely by age, but by the long existence of the calculus and its fearful consequences. I am entitled therefore to say that every calculus being discoverable with proper vigilance while it is still small, it is removable by proper means, with an almost certain prospect of success. I regard the operation of lithotomy, then, attractive as it is to the practical surgeon by its brilliancy, and by the qualities which it demands for its successful performance, as destined ere long to be unknown or nearly so, in the cases of the adult. For myself, I should resign it, with all its glories and excitements, with profound regret, if I may be so permitted to speak, yet with a conviction that it will, though decreasing in frequency year by year yet last perhaps during this century. The limits of time do not permit me to enter upon that fertile and interesting topic, the mode of its performance. Suffice it to say, that almost all the cases here recorded have been cut on the median and medio-bilateral methods; opening up a subject which I should have been glad to discuss had it come within the limits of our time. My object here has been rather to illustrate and enforce the capabilities of lithotrity, and to establish for it if possible a higher place in the estimate of British surgeons than I think it has hitherto attained. It is with this end that I have brought these facts before you to-day, believing that under no other circumstances should I find so good an opportunity of submitting them to the consideration of the profession at large.

## IODINE INHALATION IN THE TREATMENT OF DIPHTHERIA.

By J. Waring-Curren, L.K.Q.C.P.I. &c.

The amount of interest created by the appearance of my hurriedly written and incomplete paper published in the December number of the past year, and the inconceivable number of letters received by me relative to it from members of the profession throughout the United Kingdom, rendering it impossible that I could reply to each, individually, as fully as I am in most instances requested, and as satisfactorily as I would myself desire, suggest the supply of another communication in order to convey the information so generally demanded; and, by the selection and history of three of the cases treated, to establish beyond doubt the importance of the remedial agent advocated in arresting the progress of diphtherite membrane in its development, thus robbing the disease of its malignancy, and subduing a mortality hitherto so appalling. Having witnessed the progress of three cases the results of which were very unsatisfactory, considering that every means was had recourse to in order to stay the virulence of the disease, and every method of treatment adopted to afford relief to the distressing symptoms manifested, I was induced to try the effect of iodine vapor in future cases, having some time previously experimented upon, and had the pleasure of observing the beneficial effect it produced in destroying the morbid products thrown out in cases of "pip" among, chickens. In none of the three fatal cases alluded to in my paper would (as has since been suggested to me) the operation of tracheotomy been advisable, owing to the false membrane having extended to the bronchi; its performance could only have hastened death, and have reflected little credit on the operator. Nor would "local depletion," as others recommend, "in order to diminish the inflammatory symptoms," have been of much greater efficacy, because of its weakening influence generally, and especially in predisposing the patient to the repetition of fresh exudan.

The formula which I employ for inhalation purposes is the same as that formerly used by Sir Charles Scudamore in pulmonary phthisis—viz.: Iodine, iodide of potassium, of each four grains; alcohol, four drachms; water, four ounces. Of this, for each inhalation, commencing, I take a drachm; add to it a pint of vinegar infused with a handful of dried garden sage, placed in a common inhaling jar, steadily increasing the quantity of iodine solution until I arrive at half an ounce each inhalation. The circumstances of the case, the age and strength of the patient, and the severity or mildness of the attack, guide me with regard to the number of inhalations, and the time occupied by each. For an average case, occurring in a healthy patient, I would say twelve inhalations at least per diem, with eight to twelve minutes (an interval allowed to rest) for each. The loss of valuable time in country practice, occasionally, will not permit the delay of sending and waiting for an apparatus; accordingly not unfrequently I have been compelled to make my inhalation in the following manner:—Having boiled the vinegar and sage, place it in a teapot with a long spout, and when the patient is prepared to inhale, add the iodine, cover the lid of the vessel with a cloth, keep up the temperature by a spirit-lamp placed underneath, and holding the vessel by the handle, allow the patient to inhale through the spout. Laryngeal irritation is in a great measure prevented by the small quantity at first used, through the patient becoming gradually accustomed to it. In the history of the three following cases, copied from my notes, will be found all the practical information which my numerous respected correspondents require.

Case 1.—M. A——, aged two years and a half, of delicate constitution, frequently the subject of bronchial irritation and coryza, was visited on January 14th, having been out of sorts the three preceding days. There was tumefaction of the lymphatics of the neck, those in the submaxillary and sublingual regions being perceptibly enlarged, and painful. There was fever; a short, dry cough at times; wheezy respiration; and apparent difficulty of deglutition, the child pressing the larynx forcibly with its hand when attempting to swallaw the saliva. On exploring the throat, I found the tongue coated with a slimy mucous fur, the tonsils swollen, and the velum pendulum, uvula, and back of pharynx highly vascular. On pressing the base of the tongue firmly forwards, I observed a rugged piece of membranous deposition in the pharynx low down. I was unable to reach the part satisfactorily with nitrate of silver. Ordered a calomel and rhubarb powder, the bowels being torpid; and to commence iodine inhalation.

Jan. 15th.—The child has spent a restless night. The cough is brassy, the voice croupy; every effort at deglutition causes an amount of pain which the features expressively evince. There is a yellowish-colored membrane deposited on the left tonsil. I directed the quantity of iodine to be increased to half an ounce each inhalation, and to be used every second hour. Ordered ice *ad libitum* strong beef-tea, and wine; and the following mixture:—Solution of cinchona cordifolia, half a drachm; white syrup, four drachms; compound spirit of ammonia, a drachm and a half; water, six ounces: one tablespoonful every two hours.

16th.—The child is better. Breathing easier; cough hoarse, but a quantity of mucus has been expectorated; deposit on tonsil unattached in parts, which I removed. The breath is exceedingly fetid, and so are the evacuations. Ordered six grains of mercury-with-chalk, and to continue inhalations.

17th.—There is evident improvement, with relief to general symptoms; but the pulse is remarkably weak.

18th.—Has expectorated false membrane and blood. To continue treatment.

19th, 20th, 21st.—There is gradual improvement, and all danger seems at an end. To decrease the number of inhalations.

25th.—Nothing unusual to note. Patient is still weak. To leave off inhalations, and continue nourishment.

Case 2.—K. C——, aged nine years, a fine healthy girl, has been complaining for the past few days of stiffness in the muscles of the neck. There is fever; a hot, dry skin; slimy coated tongue; and fetid breath. The bowels are regular, but the urine is scanty. There is a chain of glandular enlargement, along the sterno-cleido-mastoid; the submaxillary is swollen to the size of a pullet's egg. On looking into the throat, there is a white pellicular exudation on both tonsils and side of uvula. All the parts are red and swollen; deglutition is performed without pain; there is little cough, but a hoarse voice. To commence inhalation of iodine directly.

Jan. 22nd.—The disease continues without any appreciable change; the appetite is good, and the girl cheerful. The depositions exist as on yesterday.

23rd.—Has been coughing all the night; to-day it is dry and hoarse. The respiratory acts are painful and noisy. Over the anterior surface and apex of the left lung sibilant râles are audible. Ordered an emetic of mustard, which brought away a quantity of laryngeal or pharngeal mucus, to the relief of the patient. The quantity of iodine to be increased to six drachms, and an inhalation every two hours, and a blister over the chest, with a bark and ammonia mixture.

24th.—Is much relieved, having in the night expelled a large piece of false membrane; that upon the tonsil appears shrivelled and devoid of virus, and is still firmly attached by its centre.

25th.—Keeps expectorating portions of membranous deposit; tonsils denuded of abnormal covering, but present a raw, inflammatory appearance. To continue treatment.

26th.—Inhalations produce stridor; to discontinue their employment.

27th, 28th.—Patient rapidly recovering; hearing is imperfect on the left side.

Case 3.—C. T——, aged eleven years, was seen for the first time on the 25th of January last. The patient has been ill for three days, the relatives thinking it was an ordinary sore-throat, requiring nothing more than domestic attention. The face is waxy; the lips livid; a dark areola surrounding the eyes; the chest heaves perceptibly, and jugular pulsation, denoting serious respiratory embarrassment. The mouth is filled with a clammy secretion; the fetor of the breath is insupportable. There is a discharge from the nose; the tonsils are greatly enlarged, seem to touch one another, and are covered with diphtheritic membrane. To commence iodine inhalation without delay, begining with one drachm of the solution; brandy and wine every hour, and a tonic mixture.—Evening visit: Expresses himself relieved by the inhalation. The pulse 120; respirations 24 per minute, accompanied by a rattle. Tickled the fauces to induce vomiting, which brought away mucus.

26th.—Tonsils still swollen; membranous deposit darker in color. Freely cauterised all the parts where it was practicable with nitrate of silver. Iodine, inhalations to be increased in number and strength.

27th.—A regular *carte* of trachea has been expelled during a violent fit of coughing, to the marked relief of all the symptoms. Have been enabled to remove the greater part of the abnormal coating of the tonsils.

28th.—The breathing freer; a marked improvement generally; has spat a small quantity of blood; the bowels are rather constipated. To have a mixture composed of dilute sulphuric acid and sulphate of magnesia, with acid infusion of roses; and to continue inhalations.

29th to Feb 4th.—Progressing most satisfactorily.

I possess notes of seventeen additional cases, the recital of which would occupy considerable time and space; and, as I consider the history of the three cases given will be sufficient stimulus for others to adopt the same line of treatment as that which has proved so successful with me in warring with a virulent malady, and combating so closely with death, I shall conclude my paper on the subject with the hope that iodine will be found eventually by others the specific for diphtheria which I look upon it to be.

**Bexhill, St. Leonards, Oct. 7th, 1867.**

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# ON THE INHALATION OF THE VAPOR OF CHLORIDE OF AMMONIA IN ITS NASCENT STATE.

By Hermann Beigel, M.D., M.R.C.P. Lond.,

**Physician to the Metropolitan Free Hospital, and to the Farringdon Dispensary.**

Ammonia is one of the few medicaments which have been in great favor with physicians from the earliest period of medical history up to the present time; and the favor is well deserved, for the medicament renders very good service in all catarrhal diseases of mucous membranes in general, and of those in particular which line the air-passages of the human body.

To apply this remedy locally was considered a great desideratum by Galen, who ordered his patients to burn pieces of hartshorn, whereby ammonia escapes, and to inhale the vapor arising therefrom. More recent physicians combined ammonia with camphor and other volatiles, and made their patients inhale the mixture, either by placing their mouths directly over a vessel containing the substances, or, as Ducros, Rayer, and Trousseau did, by dipping a piece of lint into liquid ammonia, and keeping it by means of a handle in the mouth, or moistening the soft palate or pharynx with the fluid. This mode of application was practised particularly on patients suffering from asthma, for which disease ammonia was recommended by Van Swieten.

Marshall Hall's experiments have evidently shown that ammonia, by its property of neutralising carbonic acid, is able to prolong animal life. Therefore, he concluded, this drug may not only be applied wherever carbonic acid is produced in a limited space, but seems particularly apt to render good service in cases of secondary apnœa after incomplete suffocation. The experiments of Marshall Hall have been confirmed by Bullock and Ogle.

But it was Alfred Smee who not only gave distinct indications for the local application of ammonia by pointing out the diseases in which he had applied it with benefit, but who likewise constructed an apparatus for its convenient application. Mr. Smee's paper and woodcut of the apparatus were published in the *London Medical Gazette* of 1843 (vol. ii., p. 59). "The inhalation of so stimulating a gas as ammonia," says Smee, "is well known to be at first sight perfectly startling to those who have never either tried it on their own persons, or never seen it applied by others; but it is really in many cases, with proper management, a simple and one of the most delightful remedies that can be employed." The diseases in which Smee principally used the local application of ammonia were, chronic hoarseness and old-standing cases of asthma; "especially in those in which the medical man considers that the internal use of the sesquicarbonate of ammonia is indispensable, in which the extremities are cold, the pulse feeble, and the general vital powers depressed, the local application of ammonia is particularly grateful; the patients feeling, as they describe it, a glow after its exhibition, and the warmth first imparted to the lungs extending by degrees over the whole system." Smee likewise recommends the gas as affording great relief and comfort in a relaxed, swollen, and apparently semi œdematous state of the mucous membrane, which supervenes from remaining in crowded, overheated, and ill-ventilated rooms, where every person not only inhales his own breath over and over again, but is under the necessity of breathing his neighbor's also.

Powerful and beneficial as ammonia is as a remedy, yet it is connected with many inconveniences when applied as vapor spontaneously exhaled from solutions of ammonia. In this state, even if sufficiently diluted, violent symptoms follow each application; and, the gas being rapidly absorbed by the mucous membranes of the respiratory apparatus, the local effect cannot easily be controlled.

A far better plan of applying ammonia to the organs of respiration, therefore, is the one of Dr. Lewin, consisting in making use of the nascent state of chloride of ammonia, in which state it forms a vapor, and can readily be inhaled. But this vapor consists, in fact, of the atoms of a solid body, which, when inhaled, penetrate into the minutest vesicles of the lungs, and, becoming precipitated on the mucous membranes of the organs of respiration, afterwards get absorbed, thus exercising both a local and general effect.

This affords many important advantages. But before enumerating them, it will be necessary to explain the construction of the apparatus which I employ for the above purpose. It consists mainly of three bottles, as used in chemistry for the evolution of gases: one, containing some liquor ammonia, and another, containing some hydrochloric acid—according to their chemical proportions,—are connected with a third, which is about half filled with pure water. From the last bottle the inhaling tube projects. The whole apparatus is put into a box for portability.

The patient raises the mouthpiece of the tube to his mouth and uses it exactly in the same manner as a pipe is used by a smoker. With each draught, ammonia, escaping from the first bottle, and hydrochloric-acid gas, from the second, combine, the moment they meet in the third, to form chloride of ammonia, which gets washed in the water of the last, and deprived of the superfluous particles of the two constituents.

The apparatus, which I had made by Messrs. Krohne and Sesemann, of Whitechapel-road, is extremely simple, and requires no other attention than to renew from time to time the fluids. The advantages of this mode of local application of ammonia are various.

1. The vapor of chloride of ammonia thus smoked *in statu nascente*, may be swallowed or inhaled without any inconvenience: in the former instance becoming absorbed by the stomach; in the latter, being in contact with the mucous membranes of the mouth, pharynx, larynx, trachea, bronchial tubes, and according to the force of inspiration, it penetrates into the minutest vesicles of the lungs.

2. The vapor being precipitated only after a few seconds' stay in the respiratory organs, it is in our power either to exhale it again after acting for a short time on the mucous membrane, or, by keeping the breath for a few seconds, to allow the vapor to precipitate on the mucous membranes.

3. A deep inspiration being required to drive the vapor forth to the finest air-tubes and lung-vesicles, it is to a certain degree in our power to act only on the pharynx and larynx, or to extend the action to the bronchial tubes and lungs.

4. By altering the proportions of the hydrochloric acid and the ammonia, the latter may be allowed to exist in a free state, and to exercise irritating effects. Should it, on the other hand, be required to deprive the vapor of all superfluous particles of ammonia, it would only be requisite to add some hydrochloric acid to the water in the third bottle; thus establishing two sources for originating chloride of ammonia.

5. If balsamic mixtures or volatiles be added to the water—for instance, essence of turpentine camphor, &c.,—the efficacy of the smoke may be increased in appropriate cases.

6. The smoking and inhaling of chloride of ammonia is not in the least disagreeable.

It is true that a certain amount of practice is required in order to inhale the smoke well; but this practice is acquired very soon indeed. The effect of these inhalations, in many cases, shows itself very rapidly; and I have seen instances of bronchial catarrh in which relief was felt after inhaling a few times only. Hoarseness, proceeding from a catarrhal state of the vocal cords, has likewise been relieved in some instances in which local application of astringent solutions have been without any effect. Difficult expectoration becomes often soon easy; and the vital capacity increases if it has been diminished by an undue action of the mucous membranes of the organs of respiration.

Finsbury-square, Oct. 1867.

# HANGING AND STRANGULATION.

By I. Massey, M.D., F.R.C.S.,

Senior Surgeon to the Nottingham Dispensary.

The following are the particulars of two post-mortem examinations; one that of a man executed by hanging, the other that of a child strangled. They are, I think, of sufficient interest to warrant their publication.

The man was about thirty years of age, height 5 ft. 9 in., weight 12 st. 7 lb.; robust, healthy, and of good constitution; chest and muscular system well developed.

*Sectio cadaveris, four hours after death.*—Countenance swollen; lividity of the lips; indentations at the border of the tongue, indicating firm pressure against the teeth, but no mark of biting from protrusion between the teeth. Both pupils dilated, eyelids closed; a little frothy mucus issuing from the mouth; lividity of both ears. There was a well-defined and deep indentation going all round the neck, with the exception of an interruption from a point corresponding to the symphysis of the lower jaw to its angle on the left side; between these points no mark was visible, indicating the position of the noose of the cord. The general width of the mark was from half to three-quarters of an inch, being most marked on the right side of the neck as far as the anterior border of the trapezius muscle, less marked behind; color of a tallowish hue along the course of the mark, intersected by lines of a purplish color; much puckering of skin both at and above and below the mark; also a swelling of considerable size in the situation of the right sterno-mastoid muscle. Penis congested and moisture issuing from the orifice of the urethra; a couple of stains, apparently due to very slight seminal discharge, or prostatic secretion, were observed on the shirt.

*Chest.*—Body just warm. There was very marked flattening of the chest on each side of the sternum, especially from the first to the third ribs. There was a thick layer of fat in the integument. Black fluid blood escaped freely from the cut muscular structures of the parietes; there was considerable dark venous congestion. On removing the sternum and cartilages of the ribs, the lungs were not to be seen, and were found to occupy a very small space at the back part of the chest, resembling the contents of a fœtal thorax; the pericardial sac alone being seen. The color of the lungs was of a darker hue than natural, especially at the bases. On cutting out the lungs a quantity of black fluid blood flowed. The structure was healthy, but there was loss of crepitancy, and but very little air was contained in them.—*Heart:* The right auricle was gorged to the greatest state of distension with blood, and the inferior vena cava was in a like condition; on opening the auricle a great quantity of black fluid blood gushed out. The right ventricle also contained a large amount of blood of the same character; there was no blood-clot seen. The left auricle and ventricle were completely empty, the the walls being tolerably thick. The *liver* was healthy, and contained black fluid blood.

*Neck.*—along the course of the indentation the skin was thinned to the last degree, and semi-transparent, resembling parchment; when dissected off freely, there was slight extravasation of blood on the right side beneath the line where the rope had passed. The sterno-cleido-mastoid muscle of the right side was ruptured for one-half of its breadth, the ends being separated by retraction for nearly two inches; the fascia of the muscle, not being torn through, remained as an empty cylinder. There was extravasation of blood in the carotid sheath, but the coats of the internal jugular vein and common carotid artery were uninjured. The bones and cartilages of the larynx were whole, and no injury could be detected; but there was slight venous congestion of the laryngeal mucous membrane above the vocal cords.

The *spine* was not laid open to view, but after the larynx was removed the spine could be felt very plainly. The anterior arch of the atlas moved with the rotation of the head, their relative position being normal. No displacement or fracture of any of the vertebræ could be detected.

The structure of the *brain* was healthy. The vascular system appeared to be nearly empty; there was not any congestion (this might possibly be from the previous dissection of the chest.) There was much cerebro-spinal fluid. The arachnoid membrane was semi-opaque in patches over the surface, but there were no roughness or adhesions.

The most remarkable feature in the above case was the great flattening of the chest, at once noticed on removing his shirt. The thoracic cavities were for the most part empty. The lungs occupied but a small part of their posterior chambers, being so condensed by the absence of air as to be but very slightly crepitant. The situation of the ligature mark shows that the rope must have been displaced before the drop fell; the pressure from the weight of the body falling on the right side tearing across the sterno-cleido-mastoid muscle, instead of in front directly on the windpipe. I have never seen such a condition of the chest and lungs after other executions I have witnessed.

The second case is that of a young woman who was seen by a policeman about eleven in the morning standing near to a large river. She had a bundle, which, appearing heavy, excited the suspicions of the officer, and he requested to see what it was. She refused, but he, insisting upon examining it, found it to contain a full-grown female child and a piece of coal weighing nine pounds. They were folded in an old apron, tied round with two stay-laces, which had blood on them. She said it was her child and that she was single. She was two miles from home. It was afterwards discovered that she had given birth to a child during the previous night, no one being present. A coroner's inquest followed, and she was committed to the assizes for wilful murder.

*Post-mortem examination.*—Female child, full-grown; weight 6½ lbs., length 20 inches. Cord, not tied, six inches long; jagged at the end, apparently cut with dull scissors. Bloody discharge issuing from both mouth and nostrils; mouth open, tongue protruding between the lips. General lividity of the head and face. Surface of the body besmeared in patches with dry blood; it was covered with a layer of sebaceous matter; There was considerable elongation of the occiput, as if born naturally.

*Neck.*—There was a well-defined, indentation from a ligature all round the neck, about two lines in breadth, corresponding exactly to the width of the stay-laces with which the bundle was tied, linear marks of the threads of the tape being distinctly seen along the course of the mark. Dissecting back the integument, the line of indentation was distinctly seen, the skin being semi-transparent, very thin, and parchment-like. There was no extravasation of blood. The situation of the mark was immediately above the sternum and clavicles.

*Chest.*—The lungs filled the chest, indicating complete respiration; they were of a bright-red color, weighing 12 dr. They floated in water; when cut into small pieces and squeezed and again put into water, they floated. They crepitated. When cut, and on being pressed, frothy bloody mucus escaped from the cut surfaces.

The *heart* contained black blood.

*Head.*—The whole venous system was loaded with black fluid blood, the sinuses being gorged.

The above formed the substance of the medical evidence given at the trial; and that the child was born alive; that it had a separate existence from the mother; that the death did not take place from natural causes, but from the effects of the ligature which had been placed round the neck—that it had died from strangulation; that the ligature mark could not have been caused by the navel-cord being twisted tightly round the neck. Not being able to swear positively that the ligature was applied after the entire birth of the child, but that I believed such to have been the case, the Judge ruled that the verdict must be "concealment of birth," and not wilful murder. Sentence, twelve months' imprisonment.

Some of the post-mortem appearances, taken singly, would not be opposed to death taking place from the natural results following a difficult labor; but taken collectively, with the mark on the neck, there could be no doubt of its having been caused by the ligature producing strangulation. Full respiration, and therefore an independent circulation, had been established. But the question to be determined was, whether the ligature was applied before the *legal* birth of the child—that is, before its entire separation from the mother. There was just a bare possibility of such having been the case, and the prisoner had the benefit of it.

Nottingham, Oct. 16th, 1867.

◆

### ON A

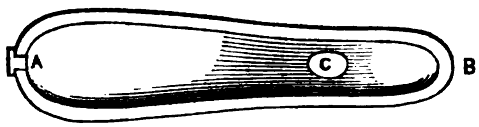
## NEW APPARATUS FOR THE TREATMENT OF FRACTURES OF THE LIMBS.

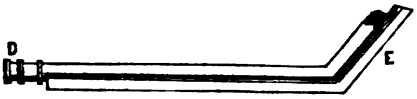
By Christopher S. Jeaffreson, Esq., M.R.C.S.,

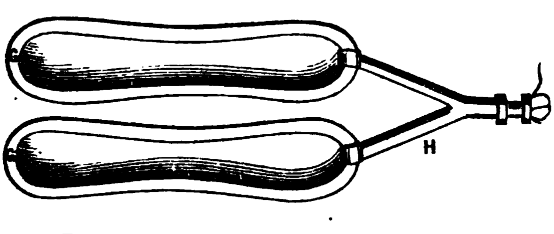
Senior Resident Surgeon at the Royal Free Hospital.

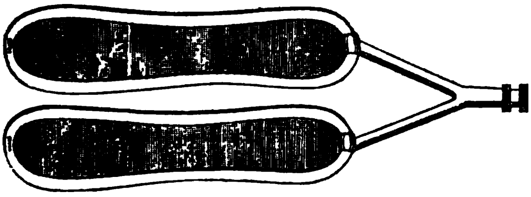
In this age of invention and progress so many new pieces of useful mechanism are brought before the public which have but an ephemeral existence, that it requires not a little spirit and energy to start another, especially when it relates to such an oft-trodden field as the treatment of fractures. In advancing the present one, however, in the confidence of its success, I do not pretend to lay claim to any inventive genius, but simply to the carrying into practice of a passing thought which claims simplicity as its greatest merit.

I have somewhere seen it stated, that the criteria of a useful apparatus for the treatment of fractures are—1st, that it should be efficient; 2nd, that it should be cheap; and, 3rd, that it should be readily obtainable. All these advantages I think I may claim for the instrument I am about to describe: the conditions of the first clause it especially fulfils; and those of the second and third not less so than any other apparatus in general use.









The main feature in my plan is the substitution of a water pad exactly adapted to the splint upon which the leg reclines, the lateral pressure being applied by means of cushions capable of being distended by air or water, as may be deemed advisable; and the way in which it has been applied at the Royal Free Hospital (through the kindness of Mr. de Méric and Mr. Weeden Cooke) may be described as follows:—A B (Fig. 1) represents a water bed made to fit an ordinary back splint; an aperture being left at C for the heel, and beyond this the bed turns up to fit the foot-piece. This is easily understood by reference to the diagram D E, which represents a side view of the two together *in situ*. G G is a diagram of the two lateral cushions. They are made of caoutchouc, and are sufficiently long to extend from a little above the knee to the sole of the foot. Their two feeding tubes unite at H, and thus the amount of air sent to either of them is equalised. I I represents them in a distended condition. The leg then having been securely placed upon the back splint, and extension being made to reduce the fracture, the cushions, which are accurately adapted to two slightly convex lateral splints, are loosely adjusted to the limb by means of two webbing straps (Fig. 2). The mouth is then applied to the tube H, and air steadily driven into the pads. These soon become distended to the extent to which the lateral splints will admit of, and at once adapt themselves to the limb so closely as to form an admirably equable support in all directions, effectually preventing any displacement, and that without being irksome or painful to the patient (Fig. 3). At first I imagined that an air-pump would be necessary to produce the amount of tension required; but I find that my own respiratory effort is sufficient to produce any amount short of what would be absolutely injurious.

I will then briefly enumerate the advantages which are to be derived from the instrument whose claims I advocate.

1st. It produces an even and equable pressure on all parts of the limb, adapting itself to all its curves and undulations.

2nd. This pressure can be regulated with a nicety unattainable by any other process.

3rd. It avoids the necessity of pads, of tow, lint, or any other material, which absorb discharges, harbor vermin, and are constantly kept in a state of unpleasant moisture when lotions are applied to the limb.

4th. It permits an examination of the limb to be made without removing the splints.

5th. Its comfort must be obvious to the most casual observer.

6th. It is light, and can be obtained for a very small sum.

In some future number I hope to give some details of its application to fractures of other limbs, to all of which it is easily adapted, more especially to those of the forearm. The apparatus may now be seen in use at the Royal Free Hospital.

October, 1867.

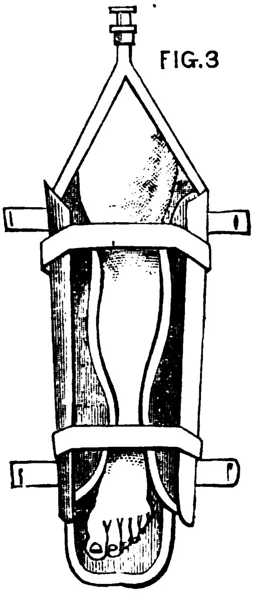


FIG.3

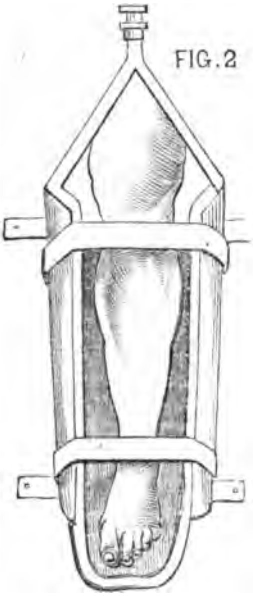


FIG.2

## A

## CASE OF TRAUMATIC TETANUS TREATED WITH NICOTINE.

By Reginald Harrison, F.R.C.S. Eng.,

**Surgeon to the Liverpool Northern Hospital, and Lecturer on Anatomy at the Liverpool Royal Infirmary School of Medicine.**

Amongst the very numerous remedies used in the treatment of tetanus, tobacco in some form has frequently been resorted to for many years past; and since the publication of the Rev. Prof. Haughton's paper on the Counteractive Effects of Strychnia and Nicotine, an additional interest has been given to this plan. A recent case under my care where nicotine was used may not prove uninteresting, as generally corroborative of the conclusions drawn by Professor Haughton from somewhat similar cases under his observation, and which are recorded in the thirty-fourth volume of the *Dublin Quarterly Journal*. I am indebted to Mr. Woods, who was my dresser at the time, for the notes of this case.

R. D——, a laboring boy, aged eleven, was admitted into the Liverpool Northern Hospital, under my care, on Jan. 6th, 1857. Exactly five weeks before admission, he fell on the back of his head, producing a ragged scalp wound about an inch in length. The wound was not inclined to heal, and three days before admission he complained of stiffness about the neck and difficulty in opening his mouth. The wound was suppurating and the bone bare. The muscles about the face and neck were rigid, the tongue could not be protruded, and the *risus sardonicus* was unmistakable. There was a slight degree of opisthotonos and rigidity of the flexors of the forearm. These symptoms gradually increased in severity. A quarter of a grain of morphia in solution was injected subcutaneously every three or four hours. Beef-tea and juice were given in small quantities at frequent intervals.

Jan. 7th.—The general symptoms were much the same. The opisthotonos rather more marked. He had slept several hours after the morphia. The morphia to be continued. Pulse about 100. The bowels opened after an enema.

8th.—The symptoms are more marked. The opisthotonos is extreme. The voluntary muscles generally are rigid. He was extremely restless; and though the morphia was increased, it failed to give relief. Pulse 104.

9th.—General rigidity of muscles increased. He was constantly crying out, being in great pain. He had not slept during the night. The muscles in the perineum were extremely rigid, and it was necessary to remove the urine with the catheter. Though the muscular spasm was continuous, it was greatly increased in intensity on anyone touching him, or even approaching him to alter his position. There was great pain about the diaphragm, with hiccough. Skin hot and dry; bowels only acting after an enema; pulse 120, and thready. There was a small collection of matter near the wound, which was opened, and about a drachm of pus evacuated.—Quarter to five P.M.: One-twelfth of a drop of nicotine was administered, the pulse being 120.—Quarter past five P.M.: The dose was repeated; pulse 108.—Quarter past seven: Pulse 112. One-eighth of a drop of nicotine was given.—Nine P.M.: The pulse was 68, and slightly intermittent. He was sweating profusely. There was much less muscular rigidity, and he was enabled to pass his urine naturally, which he had not done for thirty hours. The nicotine was discontinued for the night.

10th.—Nine A.M.: The pulse had risen to 110. He had slept comfortably for several hours. Muscular rigidity certainly less than on the previous day. Skin moist and perspiring. No nicotine was administered during the day; but in the evening one-twelfth of a drop was given, the pulse being noted at 132.

11th.—Passed a tolerably good night, and remained comfortable during the day. Pulse 110. One-eighth of a drop of nicotine to be given at night.

12th.—Had slept for several hours. Pulse 92, and regular. Towards the evening of this day he did not appear so well. The general muscular rigidity was much increased, and it was necessary again to make use of the catheter. Pulse 115. The nicotine was repeated (one-eighth of a drop) twice during the night.

13th.—Half-past eleven A.M.: He had slept for several hours, and was decidedly better. Pulse 100. He was again able to pass his water naturally.

Without going more into detail, I may say that from this date his improvement was uninterrupted, and he left the hospital quite well in six weeks. The nicotine was given occasionally, being invariably followed with relief. During the whole course of the disease a generous fluid diet was given, without stimulants.

In this case, although symptoms did not show themselves till the thirty-second day after the injury, yet they were of a sufficiently aggravated character to lead me to apprehend a fatal result. The morphia in the first instance appeared to give relief; but on its failing, I fell back upon the tobacco treatment as a last resource. In administering the nicotine (which was procured for me with great promptness by Messrs. Clay and Abraham), I found that one-twelfth of a drop was quite sufficient to produce a decided effect, and at no time was it increased to more than one-eighth, dissolved in alcohol and water. An hour always intervened between the doses. I mention these points for the guidance of those who feel disposed to try the plan of treatment. The effect of nicotine on the system is of so depressing a nature especially in the case of those unused to tobacco, that it is most important not to give the least quantity more than is absolutely necessary.

The effects of the nicotine, as observed in this case, may be summed up as follows:—

1st. A diminution in the frequency of the heart's action. On the 9th of January, in four hours and three quarters, the pulse fell from 120 to 68. This was most marked on the first day; but the same effect was more or less invariably observed consequent upon its administration.

2ndly. The muscular spasm was invariably diminished. This was generally evident, but more especially by the voluntary discharge of urine, and by the breathing becoming easy and unaccompanied with diaphragmatic pain.

3rdly A tranquilising effect on the nervous system generally.

4thly. It promoted the action of the skin, though I never detected the "snuffy odor" of the excretion as mentioned by others.

Such are the more prominent particulars in this case. I find there are many recorded cases where a recovery followed the use of tobacco; and some speak highly of its beneficial effects as an external application, in the form of a poultice to the wound by which the tetanic symptoms were produced. From the observation of many cases of this distressing disease, I should certainly feel more confidence in again adopting the treatment that I have recorded than any other I have seen tried.

**Liverpool, 1867.**

## ON THE

## INTERNAL USE OF LIME IN CANCEROUS AND OTHER TUMOURS.

By Peter Hood, M.D.

We have heard a great deal lately about injecting cancers with acetic acid, bromine, &c.; freezing them; burning them; softening them by alkaline, or hardening them by acid caustics; deodorising them; galvanising them. In fact, numerous methods of *local* treatment are being discussed, while *constitutional* treatment is almost abandoned. It may not be ill-timed, therefore, for me to ask attention to the following statements.

Some years ago I was sent for to the borders of Hertfordshire to see a lady who was upwards of eighty years of age. I found her apparently a hale hearty woman, and at first was at a loss to discover why I had been sent for, as she was up and dressed, and appeared as if nothing ailed her. She was naturally of a reserved character, and was a woman possessed of a "strong will." Some little time elapsed without her making any reference to the cause of my summons to her. When I asked her why she had sent for me, she replied to my question by asking me whether I believed that the inner powder of oyster-shells would cure cancer. I was somewhat surprised at the nature of her inquiry, and answered that I had never heard of such a remedy for the disease. She then literally unbosomed herself to me, and explained why she had sent for me. She undid her dress, and exposed the left side of her chest which was perfectly flat, and covered simply by a piece of linen. This she removed and exposed to view an enormous raw surface, which resembled the body of a sheep after the shoulder had been cut from it. The wound appeared comparatively dry, as I observed nothing indicative of any discharge from it excepting a slight sanious discoloration on the linen that had covered it. She told me that she had had a cancer of the breast for some years, and that by a steady perseverance in the use of oyster-shell powder" it had entirely separated itself from her chest as I then saw it And I could not but remark that no surgical skill could have done it more effectually. She told me that she had lived for some time chiefly on bread and milk, and seldom had eaten any meat. She had never communicated the fact of her having this disease, even to her sister—a lady who was older than herself,—and her maid was the only person who knew of it. How her sister, who slept with her, could have remained ignorant that her bed-fellow was laboring under some horrible complaint appeared surprising; but, on inquiry, I learned that this old lady had lost the sense of smelling.

Although the diseased mass had separated itself from this lady's person, there still remained the peculiar odor common to external sloughing cancer. I inquired how it was she had resorted to this remedy, and she gave me the following history almost *totidem verbis*:—

"Some years ago a gentleman living near the town in which she resided had a tumour in his cheek as large as a small orange. It was about the time that the Late Sir Astley Cooper gave up practice in London and came to reside at Hemel Hempstead. This gentleman thought that he could not do better than go and consult Sir Astley about this tumour. Sir Astley saw it, and told him that it was a cancerous tumour; and strongly advised him to submit to its removal. This the gentleman objected to have done; when Sir Astley told him that unless he did he would not live beyond six months. On the following Tuesday, being market day, this gentleman was riding through the town, when an old woman accosted him by saying: 'I hope, Sir, you will pardon me; but, seeing your face tied up, may I ask you what is the matter with you?' His reply was: 'My good woman, I have a cancer in my cheek; and Sir Astley Cooper says I shall not live six months.'

She rejoined: 'If you will try an old woman's remedy, I am sure it will cure it. This the gentleman agreed to do; and in less than six months the tumour disappeared, and he got perfectly well."

This lady knew all the parties, and it was the success which attended the remedy in this gentleman's case which induced her to employ it in her own. The following is a verbatim copy she gave me the directions for using the oyster-shell powder:—

"*For a Cancer.*

"Bake a quantity, say half a peck, of oyster-shells for three nights in a slow oven. Then scrape out the *small white* part of the shell, powder finely, and take as much as will lie on a shilling once or twice a day in a little warm water or tea. If that affects the system too much leave off a day or two and commence again.

"Should an ointment be thought desirable, mix the powder in cream, lard, or quite fresh butter without any salt in it, and apply it.

"This treatment generally acquires perseverance for three or four months before its effects are seen.

"The shells to be used are those which are *concave.*"

This lady lived for two years after my first visit to her, and ultimately died in an epileptic convulsion, when she was apparently in her usual health. The wound resulting from the separation of the cancerous breast never entirely healed, but she never complained of any discomfort from it.

I have been in possession of these facts for some years, but should not have made them public, owing to the difficulty I felt in explaining the *modus operandi* of the apparently simple remedy of powdered oyster-shell in so formidable a disease as cancer—notwithstanding that I had seen in the case of the lady recorded so remarkable a result from the use of the remedy, and having every reason to believe, from her known truthfulness, the account she gave me of the gentleman who had experienced such decided benefit from it,—had it not been for a conversation I had recently with Mr. Spencer Wells, to whom I related the substance of the foregoing statement. He informed me that he attributed the efficacy of the remedy entirely to the lime contained in the powder. He told me that since he had read Dr. M'Clintock's observations some years ago on the influence of the chloride of calcium in checking hæmorrhage in patients who had fibroid tumours of the uterus, he had used lime largely in the treatment of these and other tumours; and he had become convinced that an atrophy and calcification of fibroid tumours, resembling the spontaneous change or degeneration not unfrequently observed in such tumours, was often produced or hastened by the use of lime. And he added that he had reason to believe the change commenced in the coats of the arteries supplying the tumours with blood; that these coats underwent first an atheromatous, afterwards a calcareous degeneration—in either case with a diminution of the calibre of the vessel and a lessened supply of blood. If the lime were too long continued, he believed that all the arteries in the body, not those in the tumour only, began to degenerate; the first evidence being the formation of an arcus senilis around the cornea.

The explanation appeared so philosophical, that I felt I ought no longer to observe silence on a subject of so much importance, but to submit the knowledge of it to those whose opportunities of seeing diseases of a cancerous nature are greater than mine, and who might feel disposed to give the remedy a trial; as it is one that is not likely to do harm and *may* in some instances do good.

If there be any force in the reasoning of Mr. Spencer Wells on the facts which he has observed, I cannot see why the nutrition of malignant tumours should not be as readily affected by inducing atheromatous or calcareous degeneration of the vessels which supply them with blood, as the nutrition of innocent tumours would appear to be.

**Lower Seymour-street, Portman-square, Sept. 1867.**

# CASES IN PRACTICAL SURGERY.

By T. J. Ashton, Esq.,

**Consulting Surgeon to the Marylebone Infirmary.**

### DISEASE OF KNEE-JOINT; AMPUTATION OF THIGH; DEATH; EXTREME FATTY DEGENERATION OF KIDNEYS AND LIVER.

M. B——, aged thirty-eight, a married woman, had suffered for five years from disease of the right knee. In the hope of benefiting her general health, which had become greatly impaired, she had been some months at Margate, whence she was admitted into the Marylebone Infirmary. At that time the soft tissues on each side of the knee were greatly disorganised from the repeated formation of abscesses; several sinuses existed, and a probe passed down them entered deeply into the cancellous structure of the head of the tibia; the shaft of the bone for several inches was also discovered to be implicated in the disease, and the condyles of the femur were felt to be rough and denuded of periosteum; crepitation was readily felt on slight motion of the joint. Her appetite was failing, her pulse was quick and irritable, and she complained of great pain, which materially interfered with her rest at night. The state of her constitution and the condition of the limb precluded all hope of recovery, except by an operation for the removal of the cause of so much local and constitutional irritation. The upper part of the shaft of the tibia being so involved in the disease, excision of the joint could not be entertained, and amputation presented the only alternative. The patient having had chloroform administered, I proceeded to remove the limb. First making a short anterior semilunar flap, by cutting from without inwards, the incision, commencing about four inches above the external tuberosity of the femur, was carried down to the upper edge of the patella, and terminated on the inner side of the leg at a point opposite to where it was commenced; the knife was then passed through the limb, and a long posterior flap formed; the bone was then divided at its lower fifth. The femoral artery was secured, and, as is usually the case where there has been long-standing disease of a joint, a number of small vessels required ligatures. The flaps were brought together at once by sutures and strips of plaster, and a bandage applied. After the operation, the patient was calm, and gratified at its having been performed. For six days she took nourishment freely, was comparatively free from pain, and slept well at night; her pulse decreased in quickness, and became augmented in volume. Her improved condition inspired great hope of her recovery, but this anticipation was not to be realised; on the seventh day, and without any apparent cause, she refused all food, and, as a result, she rapidly lost strength, and died ten days after the operation.

The post-mortem examination showed the liver and kidneys to be in a state of extreme fatty degeneration. The heart also was fatty, and its substance easily lacerable; the valves were healthy. At the seat of the operation it was seen that only slight union between the surfaces of the flaps had taken place, which presented a pale and glazed appearance. The femoral artery was perfectly sealed by a fibrinous clot extending an inch and a half from its divided extremity.

Examination of the limb after amputation showed the articular cartilage of the femur to be extremely eroded, exposing the osseous tissue; and the inner and outer condyles were carious. The head of the tibia was nearly destroyed by caries, which also affected the shaft of the bone for five inches. The fibula was also diseased.

The progress and result of this case present features worthy of consideration. The fatty condition of the liver, heart, and kidneys in this patient may fairly be assumed as illustrative of a depraved and degenerated nutrition of the tissues generally: a process which has been so ably investigated and fully described by Dr. Quain, Mr. Paget, and others. It was, no doubt, this want of healthy nutritive action—the process of reparation being feebler than the process of decay—which prevented the recovery of the affected structures of the knee, and which in this case led to a fatal collapse of vital power in an ineffectual effort to repair the wound occasioned by the operation for the removal of the local disease. This state of system is one which demands more attention from the practical surgeon than it often receives, and it is this idea that has led me more especially to refer to the case.

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### ON THE

## USE OF CARBOLIC ACID IN BURNS.

By William Pirrie, F.R.S.E.,

*Professor of Surgery in the University of Aberdeen.*

Having perused in the columns of The Lancet Professor Lister's original communications on the use of Carbolic Acid; having also, on the 7th of August, at the meeting of the British Medical Association in Dublin, heard him read his paper on the advantages resulting from its employment in various surgical affections; and having, on my arrival at the Aberdeen Hospital on the following Sunday morning, been called to an extensive burn, just admitted,—it occurred to me that carbolic acid might be found as useful in burns as it has proved to have been in other cases.

The patient, Ann G——, a thin, delicate-looking girl, eleven years of age, about twenty minutes before admission into hospital, while sitting before a fire without any dress except a thin chemise, which extended as far up as her shoulders, got a quantity of hot water spilt over the upper part of her body. The whole of the left side of the face and neck, and also the whole of the back and left side of the body, as far down as the iliac crest, together with the left arm, were of a deep-red color. On many parts, especially about the face, neck, and shoulder, there were innumerable small vesicles (other parts were free from vesicles); and on the arm there were two bullæ, one about the size of a penny, the other a little larger. The burn was thus, evidently, partly of the first and partly of the second degree. The patient was affected with shivering; she complained of excessive pain; the pulse was extremely feeble, rapid, and irregular; and she was troubled with vomiting, which continued for two days. Two folds of surgeon's lint, dipped in a liniment of one part of carbolic acid to six parts of olive oil, were closely applied to the whole of the scalded surface, a double layer of tinfoil was placed above the lint, and the whole secured by means of a bandage. The air was thus completely excluded; and in ten minutes, the patient, much to my surprise, stated that she was free from pain. On the second day after the accident the skin was greatly improved, and the bullæ seemed withering away. On the twelfth day the skin was everywhere perfectly healed, the cuticle having been thrown off; and, although the case was watched with the utmost care, not a single drop of pus was discovered.

The sudden and perfect subsidence of pain, the withering of the bullæ, the complete healing of such an extent of scalded surface without the slightest suppuration, in a patient of feeble constitution and greatly depressed by shock, appear to me to show that carbolic acid is well deserving of trial in burns of the first and second degree. I have seen some scalds of less extent prove fatal, and I have seen many not so unpromising at first end in suppuration and ulceration of skin, and require months to heal.

For making clear the state of parts in the first and second degrees of burns, I have been in the habit of stating to our students that they are precisely the same as those which usually result from the application of a blister; the inflamed part, without separation of the cuticle, resembling the first, and the part covered by vesicles and bullæ resembling the second, degree of burn. This resemblance of the states of parts in blistered surfaces to those in the first and second degrees of burns suggested to me the desirableness of trying the effect of dressing a blistered surface with the above-mentioned liniment of carbolic acid and olive oil. This was done in the following case, which was carefully watched and recorded by Mr. Nicoll, one of the most talented of our students, who at the time was doing duty for our house-surgeon.

Helen W——, aged twenty-seven, was admitted under my care on the 27th of August, in consequence of an injury to her right hip-joint, caused by a heavy sack of meal having fallen upon her from a great height. Some subacute inflammatory action took place in the joint; and, after other treatment, a blister of the size of the hand was applied, on the 4th of September, to the outside of the hip, and allowed to remain for seven hours till vesication to a considerable extent was produced, when it was removed; the sensations of the patient and the condition of parts being precisely the same as in burns of the first and second degree. The blistered part was dressed in every respect as in the preceding case of burn, and in fifteen minutes the pain entirely ceased. On the morning of the 5th of September the blistered surface and bullæ presented the same appearance as on the removal of the blister; on the evening of the same day the smaller bullæ had begun to disappear. On the evening of the 6th the smaller bullæ were gone, and the larger greatly diminished; and on the evening of the 8th of September the parts were perfectly healed, no suppuration having taken place.

In both cases carbolic acid seemed to accelerate the subsidence of local symptoms, to procure rapid and perfect relief from pain, and to promote healing without suppuration. If in other cases of the same degrees of burn carbolic acid should be equally useful, it would be a great blessing in the treatment of these dangerous and painful injuries.

Although water may answer for diluting carbolic acid, when used for some purposes, oil must be preferable in cases of burns.

**Union-street, Aberdeen, Oct. 22nd, 1867.**

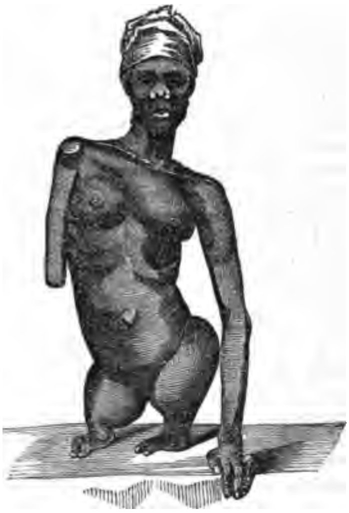
# "THE TURTLE WOMAN" OF DEMERARA.

By Izett W. Anderson, M.D. Edin.

I lately received from my brother—Dr. F. H. Anderson, of Demerara—a photograph (from which the accompanying engraving is taken) of a case of congenital deformity. It appeared to me one of such interest and comparative rarity that I obtained further particulars regarding it, and the permission of the Surgeon-General and my brother to bring it before the profession in any way I might think fit.

The subject of this case was a black girl, aged twenty-four. She was commonly called "the turtle woman," from, I suppose, the peculiar malformation of the lower extremities, and also from the fact that her mother, when pregnant of her was frightened by a turtle; and to this misfortune attributed the condition of her child. The girl has generally been healthy, and has never suffered from rickets or any disease of the bones; and her condition, as regards the malformation, has existed unchanged since her birth. None of her relations are deformed. She was able to move about a little and could do needlework by holding the cloth between the right arm and the body, and using the needle with the left hand. About two years ago she gave birth to a full-grown child free from deformity, but it died the next day. The labour was natural in every respect. In the early part of last April she miscarried of a four months' fœtus. On the 13th of the same month she was admitted into the Colonial Hospital, suffering from syphilis, and she died on the 10th of July.

My brother writes me that he could only examine the bones of one leg. The femur was only six inches long, but was articulated in the usual way, there being an acetabulum, with a strong capsule, and a ligamentum teres. "The foot is put on sideways, there being no tibia or fibula. The foot altogether consists of only six bones, four of these being toe bones—viz., the first and second phalanges of the big and second toes. The femur articulates inferiorly with one long bone, which seems to be the prolonged metatarsal bone of the great toe. The sixth bone is the second metatarsal. The right arm consists of a humerus, with the condyles well developed."



Although it is to be regretted that, owing to various circumstances, the post-mortem examination was not more complete, yet I think these rough notes may be of interest to the profession.

**Kingston, Jamaica, Sept. 23rd, 1867.**

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

**Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Prooemium.**

## KING'S COLLEGE HOSPITAL.

### REMOVAL OF THE SCAPULA, HALF OF THE CLAVICLE, AND THE WHOLE ARM; DEATH ON THE THIRD DAY.

(Under the care of Sir Wm. Fergusson.)

About two years ago Sir William Fergusson performed an operation which very nearly resembled that which we are about to describe. In that case, the patient was a girl aged nineteen, from whom, in Jan. 1865, two-thirds of the scapula were removed. On November 11th in the same year, the disease having largely recurred, the remainder of the scapula, a great part of the clavicle, and the whole upper extremity, were removed. The patient has continued perfectly well, and was shown in the theatre on the occasion of the present operation. In our accounts of this case we referred at some length to the history of operations of this character. It will not now be necessary, therefore, to do more than state that the operation which Sir William performed on the 19th November, is the second only of its kind which has been done in the metropolis, the other case being that of the girl above mentioned.

For the following notes we are indebted to Mr. Royes Bell, the surgical registrar, who, it should be recorded, performed the very trying task of keeping the patient under chloroform with the most perfect success.

Josiah B——, aged forty, married, late of Queensland, New South Wales, was admitted into the Hospital on the 7th of October last, with a large osteo-sarcomatous tumour, involving the left scapula, shoulder-joint, and adjacent parts. Two years ago he fell on the left shoulder and cut it open against a sharp edge of wood. The wound healed in a fortnight, leaving a cicatrix, which is now visible. Two months afterwards he noticed that the shoulder was becoming painful; and, in three months, that a tumour was appearing. It increased rapidly for six months. He went to Sydney, where he was advised to come to England. The size of the tumour remained stationary from the time of his visit to Sydney till two months ago, since which time it has again increased rapidly. He has had a numbing pain in the shoulder ever since the commencement. This pain has been worse of late. He always enjoyed robust health. He says that his father died after the removal of a tumour from the back. He is to all appearances a strong man, and, with the exception of the tumour, in a good state of health. There is a large tumour in the left scapular region. It is smooth, in parts very hard, giving a bony sensation. The skin is freely movable over it, and perfectly free from disease. It moves easily with the scapula; but is immovable in its deep attachments. It occupies the whole of the space behind the scapula, and takes three palms of the hand to cover it. It also projects downwards into the axilla. Here it is very hard, and the covering of skin is thinner than elsewhere. The growth goes forward under the clavicle, but does not go above it into the clavicular region of the neck. The subclavian can be readily compressed against the first rib. The arm is freely movable backwards and forwards, going with the scapula, but it cannot be directly abducted.

The following were the chief steps of the operation, which was brilliantly performed before a crowded theatre. The patient, under the influence of chloroform, was placed on his right side, well over to the right edge of the table. Mr. Wood compressed the subclavian artery. Mr. Henry Smith assisted on the right, and Mr. Trevor, the house-surgeon, on the left side. Sir William stood on the right side. The first incision was over the outer third of the clavicle, which was sawn through; then a long sweeping cut from this point, curving down in front of the shoulder, round the arm, over the deltoid, to the inferior angle of the scapula. The shoulder-joint was found to be involved, the humerus being almost immovable. The flaps were then dissected off from the scapula, and the muscles divided along the upper and ventral borders of this bone, which, with the arm, was well tilted forwards, and the knife carried round with a circular sweep to the clavicle, whence the incision had first started—the important vessels and nerves being divided, so to speak, by the last cut. The flaps were then sponged, and the main vessel and others secured. Mr. Wood had the subclavian so well under control that there was no bleeding from it, and very little from the smaller arteries; the man lost but six ounces of blood at most. Some spiculæ of bone were dissected from the posterior flap, and a piece sawn from the outer end of the clavicle, which was too long. The flaps, which were abundant, were brought together by sutures, and water-dressing and strapping applied. The man was under the influence of chloroform during the whole of the operation, but seemed to feel a shock when the main vessels and nerves were divided. The tumour, which was of an osteo-sarcomatous nature, was sent to the Royal College of Surgeons

*Progress of the case.*—Oct. 19th—Six P.M.: Pulse tolerably strong, 120. He has quite recovered from the effects of chloroform, and seems to be fairly comfortable.—Eight P.M.: Sick; unable to keep anything on his stomach. Enemata of brandy (half an ounce) and beef-tea (two ounces) every hour.—Twelve: Pulse much weaker, 140; he seems very faint; extremities warm. Respiration rapid.

20th.—Seven A.M.: Pulse irregular, very weak, and not to be counted. Enemata have been persevered in, with double the amount of brandy, and at shorter intervals. Ether, ammonia, and quinine were given by the rectum, followed at first by some slight improvement of the pulse.—One P.M.: Pulse getting weaker. Sickness continues. Can only take ice by the mouth; cannot keep down champagne or brandy. Enemata continued.—Five P.M.: In spite of the stimulants and careful nursing and watching, he continued to get weaker and weaker, and became very restless at night. After a small dose of opium he became calmer, and slept ten minutes off and on. His respiration became more rapid, the extremities cold, and the body covered with a clammy sweat.

21st.—Five A.M.: Pulse imperceptible; extremities cold. Great restlessness. Evidently sinking fast.—Died at two P.M.

On post-mortem examination, the heart, liver, and kidneys were all found to be fatty; and there was an immense amount of fat throughout the body.

The following remarks were made by Sir William Fergusson after the operation. They were noted down by Mr. Francis Mason, who has been kind enough to supply us with them.

"This patient, gentlemen," said Sir William "has the following history:—He is forty years of age, and a carpenter by trade. He enjoyed excellent health until two years ago, when he received a wound of the skin, two or three inches in length, over the spine of the left scapula. Soon afterwards he noticed a swelling in the region of the shoulder-blade which appeared to involve the substance of the bone, but was apparently not connected with the original wound. I imagine there must have been some previous growth in this locality which had escaped the patient's observation until he received the injury I have just alluded to. In a month or two the tumour became very perceptible, and has ever since gradually increased in size. He came from Australia for my advice, and was admitted into the hospital a few weeks ago. I have given all consideration to the case, and believe it to be one of those which, not many years ago, would have been treated with ointments, lotions, and other local applications; and we should have had, in the course of time, the old-fashioned fungus hæmatodes. I had no doubt in my own mind that the scapula was the principal seat of disease; and as several cases of removal of that bone have occurred in Mr. Syme's and my own practice, I would willingly have resorted to this proceeding had it been possible. It was, however, clear that, although the disease was chiefly in the scapula, the humerus was so involved as to make the removal of the whole limb a matter of necessity. The large vessels, too, were so much implicated that I felt it my duty to tell the patient that it would be expedient for him to submit to the more formidable proceeding. You can now see for yourselves, in the specimen before us, that I could not possibly have removed the scapula without also taking away the arm. You will, likewise, observe that a part of the tumour projects under the clavicle, which is another reason for adopting the course I have pursued. The operation has been performed much as you saw it done two years ago in the case of a girl. Happily that case has turned out perfectly well, and remains so. She was here to-day. The first part of this operation consisted in making a small incision in the skin over the centre of the clavicle and dividing this bone with a saw. I differ from the great authority in the north in not removing the whole of the collar-bone in these cases, unless diseased. I then made a long incision from the centre of the clavicle, extending over the shoulder as far as the inferior angle of the scapula. I then dissected the skin from the tumour, and divided the soft parts at the base of the bone. Thus I was enabled to get under the bone; and I was still not without hope that I might find the tumour so isolated that I might save the arm. But on reaching the large vessels and nerves, I found they were so embedded in the diseased mass that I resolved to remove the whole limb. Accordingly I made a second incision, the extremities of which were made to meet those of the first, across the axilla. The operation was then soon completed by dividing the vessels with the last stroke of the knife. You must have observed that there was no hæmorrhage during this last step, owing to the admirable manner in which the main vessels were commanded by Mr. Wood. The general loss of blood, too, throughout the operation was less than might have been anticipated. It did not exceed, I should say, six ounces. This is the second operation of the kind that has been done in London; and, however frightful to behold, it is one that must be resorted to in some cases, and one that I think we are perfectly justified in performing in order to save life."

### EMPLOYMENT OF CHLORIDE OF ZINC AND CARBOLIC ACID IN WOUNDS.

(Under the care of Mr. Wood.)

During the vacation, carbolic acid and chloride of zinc have been extensively used by the assistant-surgeons in charge of the surgical in-patients of this hospital; and the application of the former agent to suppurating wounds, and of the latter to the parts involved in formidable operations, has been followed by very successful results. In the following two cases, under the care of Mr. John Wood, the beneficial effects of the chloride of zinc in solution, after Mr. De Morgan's plan, were well exemplified.

On Aug. 31st a man was admitted into the hospital whose hand had just been severely injured by the explosion of a box of detonating powder. The wrist and palm were very much lacerated, two of the metacarpal bones were comminuted, and the skin and tendons were stripped off from the phalanges of the fingers. The hand was amputated at the wrist-joint, and a thin slice removed from the ends of the radius and ulna. Before the flaps were brought together a solution of chloride of zinc, thirty grains to the ounce, was applied to every part. Although the incisions were made in close proximity to the seat of injury, and damaged tissue was included in the flaps, the wound rapidly healed. There was very little suppuration, and on Sept. 4th the man was discharged from the hospital. On Sept. 12th the wound was completely healed, and the man presented a sound, firm, and painless stump.

On Sept. 8th a large and rapidly growing tumour was removed from the gluteal region of a man, twenty-five years of age. This growth was of eighteen months duration, larger than the adult head, and evidently of a malignant character. Two days before the operation the man had a febrile attack, the tumour became painful, and the skin covering it inflamed and glossy. When the growth was exposed by extensive skin incisions, its upper and superficial part was found to have degenerated into a black, semifluid mass, of an intolerably fetid odor; this was scooped out by the hand, and the deep-seated parts, which were white, firm, and marked with all the external characteristics of encephaloma, were carefully dissected away from the recesses of the gluteal region. The sacro-sciatic ligament was exposed, and round this a lobe of the tumour passed into the interior of the pelvis. The black and unhealthy-looking muscular tissue forming the thickness of the flaps was then swabbed with the solution of chloride of zinc. The man has progressed favorably since the operation, and without a single bad symptom. A drainage-tube was passed through the wound shortly after, but, notwithstanding the presence of this the edges of the incisions quickly united, and the wound is now healing with remarkable rapidity considering its depth and extent, and without any discharge of pus. Carbolic acid has been applied superficially, and the drainage-tube was passed in order to prevent putrid and unhealthy fluids from collecting in the deep parts of the gluteal region.

## MIDDLESEX HOSPITAL.

### CASES OF INFLAMMATION OF THE ORBITAL TISSUES.

(Under the care of Mr. Hulke.)

In the "Mirror" of 1867 we published reports of some cases under Mr. Hulke's care in the Royal London Ophthalmic Hospital.

The following notes are in continuation of the same subject, and illustrate especially the remarkable power possessed by the iodide of potassium in periostitis:—

Case 4. *Relapsing superficial periostitis, always relieved by iodide of potassium.*—A woman, aged twenty-five, came to the Middlesex Hospital on December the 8th, 1865, with œdema of the lids of the left eye, especially of the upper, tenderness of the upper border of the orbit, and uneasiness in looking to the left. Her history made it very likely that she had had syphilis. Under the internal use of iodide of potassium, and the local application of compound iodine ointment, the symptoms soon disappeared, and she ceased to attend; but on the 19th of the following January she returned with a relapse, and then a small round node was felt at the middle of the upper edge of the orbit. The same treatment again relieved her, and she stayed away till the 6th of March, when a return of the old pain brought her back to the hospital. In addition to the small round node, the whole upper border of the orbit was now thickened and tender. After a few doses of iodide of potassium, the pain again disappeared. Having obtained relief, she once more absented herself, though warned that she ought to remain under treatment some time longer.

Case 5. *Superficial periostitis, cured by iodide of potassium.*—A man, aged twenty-three, came to the Middlesex Hospital, May 29th, 1866, with very severe pain in the left forehead and side of the head. Both lids of the left eye, but especially the upper, were œdematous and red; the inner half of the upper border of the orbit was thickened and tender, and the œdematous edge of the lachrymal gland projected from beneath the outer part of the same border. The eyeball was slightly displaced forwards, and its mobility was somewhat restrained. Objects on the left were seen double. The visual acuity was unimpaired. He said that he had had a similar attack four years previously, and that his left eye had been occasionally uneasy during several months before he came to Mr. Hulke. The present swelling of the lids had existed only four days. Circumstances in his history made a syphilitic taint very probable. He was ordered iodide of potassium. On the third day the tenderness was less, and the swelling of the upper eyelid had disappeared; that of the lower lid was kept up by a small stye. The displacement of the eyeball was nearly gone. A week later the pain in the side of the head and the brow-ache were also gone. He was convalescent on the twelfth day; but he continued the iodide for several weeks.

Case 6. *Deep-seated periostitis; paralysis of the fifth and sixth nerves, and neuralgia, cured by iodide of potassium.*—A woman, aged forty-one, was seized with intense neuralgia in the left orbit and in the same side of the face, and she soon began to see double. Three weeks after this her left eye squinted strongly inwards, and she then came to the Middlesex Hospital. The abducens was completely paralysed. Those parts of the scalp and face supplied by the upper and the middle division of the fifth nerve were numb, but were the seat of intense neuralgia; and pressure upon the supra- and infra-orbital foramina gave great pain. The pupil of the left eye was excluded and obstructed, and there were other traces of a past inflammation of the iris and choroid.

She said that in her first pregnancy she had had a scaly rash, but never any primary sore; and the birth of this child was soon followed by inflammation of the left eye. She had four children, one an infant at the breast. The two eldest exhibited very characteristic sequelæ of extensive choroiditis, and the third had rachitis. Under the use of iodide of potassium, the neuralgia and the numbness of the face disappeared. The paralysis of the abducens also passed off, and but a slight convergence of the left eye remained, attributable to contracture of the internal rectus muscle whilst its antagonist was disabled.

Case 7. *Deep periostitis; abscess; necrosis.*—A porter aged forty-four. After three or four days of malaise, hard swelling of the eyelids and soft parts at the outer border of the left orbit, an abscess pointed below the eyebrow and broke through the upper lid. Mr. Hulke found, on the patient coming under his care at this time, a sinus leading, along the roof of the orbit, to bare but not yet loose bone. A small drainage-tube was put in, and, as he was out of health, he was ordered nitric acid and bark. After some weeks, when it was expected that the sequestrum had become loose, he came into the hospital, when iodine was perseveringly applied, in spite of which the sinus remained open, and he left after several weeks, in the autumn of 1865. In the following May he was readmitted. The external orifice of the sinus would now only admit an Anel's probe to the depth of a few lines, but the quantity of pus discharged left no doubt that there was a large cavity. Mr. Hulke now put in one of the finest lachrymal laminaria bougies, and replaced this, when it had swollen, by a larger one. The outlet of the sinus was expanded in an hour enough to allow of a thorough exploration. There was a gap in the bone just behind the upper border of the orbit, through which a probe passed into a cavity which reached nearly to the apex of the orbit; in this it could be moved freely from side to side, while its upward and downward range between the roof and the eyeball was very limited. The walls of this cavity offered a bony resistance to the probe, and within it a loose sequestrum was felt. In order to facilitate the removal of this, a drilled laminaria tent, made for dilating the os uteri, was placed in the sinus, and the patient was told to return in half-an hour, which he omitted to do. Next day, the house-surgeon found the tent so tightly held that he could not pull it out, and called Mr. Hulke's attention to it. There was great inflammatory swelling around it, and the patient had severe headache. The sinus was enlarged with a bistoury, but the tent was still too firmly grasped to be got out, and in an attempt to extract it with a sequestrum forceps it snapped off, and part remained loose within the cavity. While the tissues were so inflamed Mr. Hulke was unwilling to do more, and as the pus now escaped freely, he simply ordered a poultice. We saw the man a few days afterwards, when the swelling and redness had subsided. Mr. Hulke then proceeded to cut away the thickened upper border of the orbit, and exposed the cavity of the sinus. Its cranial wall was covered by a smooth thin membrane, while its orbital was less even; both were bony. The piece of the tent (½″ long) and some small sequestra were removed. The patient wore a drainage-tube during several months. The sinus slowly contracted, and healed soundly.

Mr. Hulke remarked that, in addition to its surgical interest, the case furnishes a useful warning to those who are in the habit of employing laminaria. It swells so quickly and so much that he has often feared that the slender lachrymal bougie would snap in pulling it out through a constricted nasal duct, though fortunately its toughness is so great that this has not yet happened.

### USE OF THE SPRAY-PRODUCER IN SYPHILITIC ULCERATION OF THE THROAT.

(Under the care of Dr. **Murchison**.)

We noticed a few days since an ingenious application of Richardson's now common spray-producer. By means of this little instrument a fine spray of sulphurous acid was showered over the tonsils and palate of a man who was suffering much distress from syphilitic ulceration of the throat. The improvement which took place was very rapid. The smell and bad taste which had been a great source of annoyance ceased immediately, and the unhealthy aspect of the sores gave place quickly to signs of healing. The man expressed himself very strongly as to the marked relief which the sulphurous acid, thus administered, had given him, and on looking into his mouth, some days after the application, we found the throat all but healed. The spray, he told us in reply to a question, produced no smarting.

The patient is a terrible example of constitutional syphilis. Three years ago, having previously always been a strong and perfectly healthy man, he contracted a chancre. He placed himself under the treatment of a medical man, who gave him a great many pills, which had the effect of salivating him so profusely that he lost several teeth. Whilst still salivated, he says that eruptions came out about his arms and legs, and his throat began to get sore, and has been ulcerated at intervals ever since. Eight months ago certain of his bones began to enlarge, and now he presents, amongst other signs, great swelling of both insteps, and especially of that of the right foot, where also there is a large ulcer. His aspect is very cachectic. He says that his father and mother suffered very much from rheumatism.

### A CASE OF FEMORAL ANEURISM SUCCESSFULLY TREATED BY COMPRESSION OF THE AORTA.

(Under the care of Mr. **Lawson**.)

At this hospital last week we saw Mr. Lawson compress the abdominal aorta for twenty minutes in a case of femoral aneurism, with the result that about four hours afterwards pulsation had ceased in the tumour. The patient, a man, had been for some time previously using a Carte's compressor, under which the aneurismal swelling had diminished in size, and become much solidified. These circumstances induced Mr. Lawson to compress the aorta, and arrest all flow of blood for a time through the tumour, as they were decidedly favorable for the success of the treatment. We shall shortly publish the case in detail.

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## WESTMINSTER HOSPITAL.

### SPHYGMOGRAPHIC CHARACTERS OF THE PULSE IN VERY MILD UNCOMPLICATED PLEURO-PNEUMONIA.

(Under the care of Dr. **Anstie**.)

In a lecture recently delivered before the Army Medical School at the Victoria Hospital, Netley, on the use of the sphygmograph in estimating the severity of acute disease and the patient's chances of life, Dr. Anstie related the following case. As it happens to be one which we saw repeatedly during its course, and as it presents features of considerable interest in connexion with the new views as to the prognostic value of the sphygmograph, we shall give a few brief notes of it.

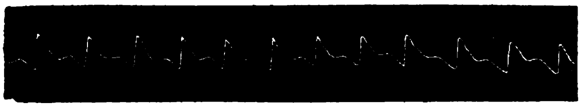
Alice F——, aged seventeen, applied for relief in the out-patient room of Westminster Hospital. Oct. 29th, 1866. She was a well-grown girl, not unhealthy in appearance, except for the almost unnatural fairness and clearness of her skin. Irides blue; hair chesnut brown; a faint flush in the centre of each cheek. She had been employed for the last two or three months as chambermaid at a large hotel, where the work had proved very severe and trying for her; she had not been used to anything of the kind, her parents having been formerly well off, but now unexpectedly reduced in circumstances. She complained of some shortness of breath, but chiefly of a sense of weight in the chest, especially on the left side; there was also occasionally a stitch of pain. No cough nor expectoration. She had never had any serious illness in her life, but had noticed herself to be ailing, with loss of strength and appetite, for about four days; had managed, however, to do her work up to the morning of her first visit.

*Present condition.*—She appears thoroughly well nourished; there is not the slightest trace of emaciation. Pulse 88; respiration 18. On examining the chest, not the least indication is found that anything is amiss, unless it may be that inspiration is somewhat louder on the left side, below the clavicle, than in the corresponding situation on the other side. The girl undoubtedly has a look of illness about her, however; and, in the absence of more distinct symptoms, one fears the possibility of tubercular mischief. But there is no history of consumption in the family on either side; nor has the patient had any even obscurely threatening symptoms.

One week later the girl presented herself again at the hospital. There was a rather more decided look of illness in her face, and she could hardly stand. There was no cough, and no expectoration. Respiration was but slightly quickened; but the pulse had run up to 120. On examining the chest, it was noticed, with surprise, that there was a friction-sound over the middle of the second left intercostal space, and an almost wooden dulness on percussion from the clavicle nearly down to the nipples; posteriorly the dulness was not quite so strongly marked. Tubular breathing could be distinctly heard in front; less plainly behind, where it was mixed with fine crepitation. The girl was at once taken into the hospital, where her subsequent history may be told in a few words. Although the pulse ran up as high as 170 on the twelfth day, and throughout the illness continued inordinately high, the respiration never rose higher than 22, nor the temperature to more than 103¼° Fahr. There never was any cough or expectoration; and the muscular strength remained far greater than is usually the case in even mild pneumonia. Yet for at least fourteen days the air-cells of more than half of one lung were impermeable to air. The consolidation quietly and steadily disappeared; and in about six weeks from the date of her first visit the girl was discharged from the hospital practically well. Throughout the illness a most careful system of generous and frequent feeding was adopted, with very little medication. The quantity of stimulant allowed was very small.

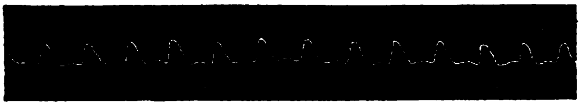
The tracings of the pulse-curve, taken respectively on the tenth, twelfth, and fourteenth days from her first visit, and on the twenty-eighth day, when resolution was far advanced, are highly instructive. Rapid as the pulse is, it will be seen that even on the worst day (Fig. 2) its characters are not of a grave, but only of medium, type of badness. The type is only that of "*full* dicrotism," even when the frequency was 170: it never reached the "*hyper*-dicrotic" form (in which the aortic notch dips below the level of the curve basis), nor did it ever become irregular or undulatory. The tracings here given are only specimens from among many taken; but they represent all the important phases of Alice F——'s pulse during her illness.

FIG. 1.



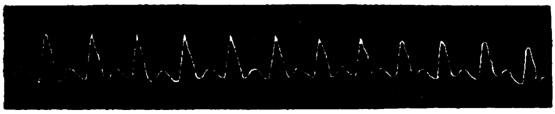
Tenth day. Pulse 150. Temperature 100°.

FIG. 2.



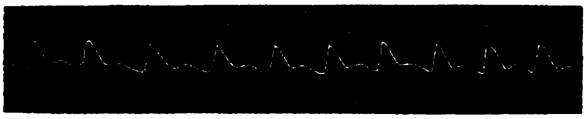
Twelfth day. Respiration 22. Pulse 170. Temperature 103¼°.

FIG. 3.



Fourteenth day. Pulse 152. Temperature 103°.

FIG. 4.



Twenty-eighth day. Pulse 125. Temperature 100°.

This case, taken together with the sphygmographic tracings, affords a remarkably good picture of simple, uncomplicated inflammation of a portion of the lung and a smaller portion of the pleura. There can be no doubt that a medical man who might be tempted, from the rapidity of the pulse, together with the considerable amount of local mischief, to interfere actively (in one direction or the other) with such a case as this, might derive from the sphygmographic traces an important aid to that firm and hopeful view of nature's work which would enable him to restrain himself from meddling unnecessarily.

## GUY'S HOSPITAL.

### LARGE ANEURISM OF THE POPLITEAL ARTERY, CURED BY MANUEL PRESSURE IN TWENTY-FOUR HOURS.

(Under the care of Mr. THOMAS BRYANT.)

As a preface to the following interesting case of aneurism cured by digital pressure, Mr. Bryant's clinical remarks will be acceptable.

He stated that we must recognise the fact that aneurisms are to be cured by pressure; that they may be cured by pressure even when such is applied irregularly and with intermittent energy, although only after lengthened treatment; but that they are to be speedily cured only when the pressure is uninterrupted and complete. The great difficulty in the treatment of aneurisms by digital pressure is found in the application of the practice, and not in the principle upon which it is based. He believed the case we are about to relate to be a good one, as pointing out the road by which success is to be secured; for it satisfactorily illustrates the truth of the remark that pressure upon an artery, to be successful for the speedy cure of an aneurism, must be complete and regularly maintained. Mr. Bryant believed it to be impossible for the average of men to keep up steady digital pressure upon an artery for a longer period than ten minutes; and that any arrangement which made a greater demand on a student's powers must be found to fail. Three good men watching a case together can keep up perfect pressure upon an artery for three or four hours, when each presses for ten minutes only at a time, without weariness to themselves, without causing needless suffering to a patient, and with a good prospect of success in the cure of the disease; and thus with nine men, three taking charge for four hours out of every twelve, the treatment of aneurism by digital pressure can be efficiently and satisfactorily undertaken. Mr. Bryant made these remarks from the belief that pressure had frequently failed in the treatment of aneurism on account of the manner in which it had been applied, and with the conviction that, when efficiently carried out, the majority of aneurisms would be cured by such measures.

We are indebted to Mr. C. E. Waig, dresser, and Mr. J. H. Ewart, ward clerk, for notes of the case.

C. B——, aged thirty-two, a policeman, was admitted on May 25th, 1867. The patient, who was formerly a soldier, gives the following history:—He has always enjoyed very good health. In January last he got wet one night, whilst out on duty, and had what he calls rheumatic pains in his left knee-joint. He had his knee painted with iodine, and the pain went away in a couple of days. With the exception of this he has never had anything the matter with his knee before. About the 15th of March, 1867, he was taking a prisoner to the police-station, and on the road he was tripped up three times. He fell on his hands and knees, but did not hurt himself, and only felt a little shaken. Next morning he felt slight pain in his left popliteal space. This pain continued off and on till the 15th of May, but not enough to interfere in the performance of his duty; but on that day he had such a severe sharp shooting pain in his knee that he went to the surgeon of the force. He was ordered some pills, a linseed-meal poultice, and to rest his leg. On the second morning after seeing the surgeon, the patient noticed for the first time a swelling in his left popliteal space; he pointed this out to the surgeon, who ordered rest and sent him at once to the hospital, on the 25th, of May of the past year.

*State on admission.*—He is a strong muscular man, well nourished and healthy-looking; appetite good, but does not sleep well of a night. His left popliteal space is occupied by a tumour the size of one's fist, which pulsates strongly; the pulsation can be entirely arrested by pressure on the femoral artery, and the aneurismal cyst nearly emptied. He has no pain when the leg is at rest, but suffers pain on exertion. Right popliteal space quite healthy.

May 29th.—He complains of pain in his left popliteal space: the pulsation of tumour is increased.

30th.—At nine A.M. (Thursday) digital pressure on the femoral artery was commenced by relays of students, each one taking an hour at a time.—Three P.M.: Sac somewhat hardened.

31st.—Digital pressure has been irregularly kept up all night; the pulsation is less violent.—At half-past three P.M., pressure by means of a weight was substituted for digital pressure. This was continued until seven A.M. on Saturday morning, June 1st, when, on account of the pain being so severe in his left knee and leg, it was found necessary to stop the pressure. The sac at this time was somewhat hardened; the pulsation also was much diminished in force; the left leg was a good deal swollen. Digital pressure was tried, but he could not bear it on account of the pain. Pressure had been irregularly kept up for seventy hours. The patient is restless, and a good deal exhausted, only having had three hours' sleep since Thursday morning.

June 1st.—Mr. Bryant saw the patient this morning at half-past nine, when he was in a good deal of pain, and ordered him a subcutaneous injection of morphia. Tincture of hyoscyamus, one drachm; liquor of acetate of ammonia, two drachms: in water three times a day.

2nd.—In the evening he complained of great pain in his knee and leg. The house surgeon injected subcutaneously twenty minims of morphia, which eased the pain, and he then had some sleep.

5th.—The patient sleeps better of a night, and is quite calm again.

15th.—To-day Mr. Bryant bandaged his leg from foot to thigh, and flexed the leg on the thigh, which had the effect of entirely arresting the pulsation in the sac; but the pain was so great that the bandage had to be removed in five minutes.

19th.—On Wednesday morning, at nine A.M., digital pressure was again had recourse to; but this time three men were on duty at the same time for two hours, each man pressing on the femoral artery for ten minutes, Mr. Bryant wishing the entire flow of blood into the sac to be arrested. At this time the tumour was hard, and pulsating very strongly.—Half-past ten P.M.: The pain in the knee and leg was so severe the patient could hardly bear it. The house-surgeon injected subcutaneously thirty-five minims of solution of morphia. This relieved the pain, and at eleven P.M. the pulsation in the tumour ceased for the first time. However, it began again about twelve, and continued to cease and to pulsate alternately till nine A.M. on Thursday morning, when the pressure was stopped, and the tumour ceased to beat. As far as it was possible, uninterrupted pressure had been kept up twenty-four hours. About one o'clock in the morning a small cutaneous artery could be felt beating over the centre of the tumour, and one also on the outer side of the sac.

21st.—This morning he is very comfortable; has no pain; and there is no pulsation in the tumour.—Evening: Complains of his right leg being numb and cold. Ordered a hot-water bottle.

22nd.—Complains of headache; bowels not open. Ordered rhubarb powder, half a drachm, at bedtime.

23rd.—Powder acted freely. Patient feels very comfortable. No pulsation in the sac.

25th.—Going on nicely.

July 1st.—Complains of the toes on the left foot being rather cold.

5th.—Toes of left foot feel very cold, especially the big toe.

11th.—Mr. Bryant allowed him to sit up in a chair this evening; he also walked with the aid of crutches.

15th.—He gets up every evening, but is not allowed to walk.

20th.—Allowed to walk for the first time.

22nd.—He is in the grounds to-day, and can walk pretty well with the aid of his stick.

24th.—Can walk very well now. Does not complain of any cold feeling in his feet, except in the big toe of left foot.

27th.—Can walk quite naturally now, and bend the leg as much as ever he could. Has no pain. Occasionally the big toe on the left foot gets numb for a short time, but soon recovers itself if he walks about. Discharged to-day.

Up to the 25th of last month this patient had remained perfectly well.

## ROYAL FREE HOSPITAL.

### CASE OF STRANGULATED INGUINAL HERNIA; OPERATION; RAPID RECOVERY.

(Under the care of Mr. GANT.)

IN the following instance the wound healed with unusual rapidity, especially as the sac of the hernia was opened. For notes of it we are indebted to Mr. C. S. Jeaffreson, senior resident surgeon to the hospital.

Thomas B——, aged twenty, a healthy laborer has been ruptured since birth, but during the last ten years only has worn a truss. He states that on the afternoon of the 9th of September he had some slight pain in the abdomen, but this caused him no anxiety, and it was not till late at night, when going to bed, that he observed that his hernia was down. He attempted himself to reduce it, but failing in this he left it till the next morning, when he applied to a medical man, who was equally unsuccessful, and advised him to apply to the hospital.

When admitted, at eight P.M. on the evening of the 10th, he complained of severe pains both in the hernia and the abdomen. Has a small wiry pulse of 100, a furred tongue, and tolerably frequent vomiting.

The hernia is of moderate size, and extremely tense at its neck, though not in any other part. This gives it a peculiar appearance, as if it were doubled up towards the abdomen. This peculiarity is very striking at the first glance.

The taxis having failed, the patient was put under chloroform, an incision was made in the direction of the long axis of the tumour over the neck of the hernia, and a careful dissection made down to the sac. When this was opened a small quantity of fluid escaped, and its contents were found to consist of a large knuckle of intestine, together with a small piece of omentum. The former was much congested, but the latter was in good condition, and after the division of a few constricting fibres at the external ring they were both returned without difficulty into the abdomen. The wound was then carefully cleared of blood and brought together by several silk sutures a pad and bandage being placed over all.

On the morning of the 13th the dressings were removed for the first time. The wound was found to have united by the first intention. There was neither pain, swelling, nor tenderness of the abdomen, and the patient expressed himself as feeling perfectly well. He slept almost without interruption since the operation, without the aid of opium or any other drug.

On the 14th a simple warm water enema was administered, as the bowels had remained constipated, and on the 16th a small dose of castor oil was necessary. Since then the bowels have recovered their tone, and act efficiently and regularly.

# Medical Societies.

DECEMBER—JANUARY.

## OBSTETRICAL SOCIETY OF LONDON.

Dr. Hall Davis, President.

Mr. **Squire** wished to observe that at the last meeting of the Society he had understood Dr. Wiltshire to say, that although he had made some observation on puerperal temperatures, they had afforded no definite indications, and that therefore he had not given them publicity; but seeing by the journals that Dr. Wiltshire appeared to them as agreeing with those of Von Grunewaldt and Wünderlich, and therefore disagreeing with his (Mr. Squire's), he wished to draw the attention of the Society to what the difference was. Von Grunewaldt made the mean temperature just after labour in fifty-two cases to be below 99° F., and then to rise progressively; but he (Mr. Squire) showed that the true temperature was not obtainable in the axilla during and immediately after labour, and that therefore the temporary subsidence of temperature that followed had hitherto been unnoticed. In the sudden rise of temperature for the formation of milk, its subsequent subsidence, the very general return to the normal temperature by the seventh day, even to the effect of a cracked nipple in keeping the temperature high, the results he had obtained Mr. Squire stated to agree with the observations of Von Grunewaldt, and that these observations approached nearer the true temperature than those of Wünderlich. How near to these Dr. Wiltshire's observations approximated he was unable to say, but he suspected them to be open to the source of error that it was the object of his paper to remove.

Dr. Wiltshire remarked that in the observations he had made on puerperal temperatures he had adopted the same method as Von Grunewaldt and Wünderlich, and placed the thermometer in the axilla, whereas Mr. Squire had placed it in the vagina; and that this, probably, might account for the differences to which Mr. Squire alluded.

Dr. Eastlake exhibited a

### DRILL-CROTCHET.

designed by himself, to effect delivery in certain forms of parturition. In the cases in which Dr. Eastlake especially recommended its employment no other instrument is required. It may, however, be otherwise used as an efficient perforator or crotchet. It consists of a hollow metallic cylinder, to one extremity of which is attached a transverse wooden handle, while to the other is fixed a solid steel trocar point. Through an aperture in the centre of the handle connected with the hollow of the tube, is inserted a steel bar, having at the extreme end a rack, which acting against a cog-wheel, enables a bifid crotchet to be forced out at any desired angle. The extension of the crotchet, which can be accomplished instantaneously, is affected by pressure on the bar, by means of a button in close proximity to the handle, the pressure in this case being downwards and towards the handle; while, for the purpose of closing it, the pressure must be downwards and towards the point. The application of the instrument is simple. The handle being held in the right hand of the operator, the trocar point is guided through the vagina by the index and middle fingers of the left hand, until it reaches the fœtal head. The trocar point should be then fixed at right angles with the skull, and perforation effected in the usual manner. By this process the cranium can be pierced in a few seconds and the crotchet then made to act in the manner already described.

The circumstances in which the use of the drill-crotchet is peculiarly applicable, are—(1) where the presentation is natural, the fœtus dead, and the head within reach; (2) where the patient is still in the first stage of labour, and the os uteri sufficiently dilated to admit of the introduction of at least two fingers; (3) where there is an absence of any great disproportion between the fœtal head and the canal of the maternal pelvis, and in the case of a hydrocephalic head, without regard to such disproportion, the use of this instrument only is required; lastly, these conditions being present in any case in which, from any cause, immediate delivery is indicated such as puerperal convulsions, hæmorrhage, and ruptured uterus, and also in some forms of obstructed labour due to a cancerous condition of the neck of the womb, or obstinate rigidity of the os uteri. Dr. Eastlake also expressed his conviction that this instrument might occasionally be used with success in those cases in which the head of the child has been separated from the body and left in utero, and occasionally, also as a substitute for Dr. Oldham's vertebral hook.

Dr Greenhalgh considered the instrument exhibited by Dr. Eastlake well adapted to the class of cases in which he had recommended its use. It appeared to him, however, that being able to place the crotchet at an angle would prove a great advantage, and the more so if it could be fixed at such agle. Dr. Greenhalgh regretted that the inventor had not endeavored to adapt his ingenious instrument to all cases requiring the use of the perforator and crotchet.

The President observed that the combination of a perforator and a crotchet, as exhibited in Dr. Eastlake's instrument, might, if modified, be found useful in the minor difficulties of craniotomy deliveries by those operators who were still partial to the use of the crotchet. But, to be safely employed, the crotchet should be rendered less sharp, as there would be—except in the case of thick skulls—a great probability of its transfixing the cranium and wounding the operator's fingers. Moreover, the trocar, for safety, required the addition of a canula to guard its point during its passage to the head. Without it, a sudden movement of the patient would expose her tissues to injury.

The President exhibited a large Fibroid Polypus which he had removed by the single-wire écraseur from the uterus of a lady aged thirty-four, who had had six children in India. It weighed nearly a pound, and was pediculated at its base instead of its neck to the posterior margin of the os uteri. The neck protruded at the vulva, and the case had been mistaken and treated for descent of the uterus. The disease had existed for about two years; and although it had not occasioned hæmorrhage, it had been attended by pain and troublesome bearing-down sensations, with abundant leucorrhœa, which had enfeebled her health. The patient made a rapid recovery.

Mr. Curgenven read a paper "On the use of Bromide of Potassium in Puerperal Mania." Two cases were narrated in which the bromide of potassium had procured sleep when other medicines had failed, and in which the sleep thus obtained had been followed by a marked subsidence of the mental excitement, and speedy recovery.

Dr. Routh read a paper on a case of Triplets. When Dr. Routh first saw the patient, she had been in labour eighteen hours. On examination, the os was found to be completely dilated, the antero-posterior diameter of the brim was shortened by a projection of the promontory of the sacrum, and labour pains had almost ceased. A moderate-sized child was abstracted by the forceps. A second examination revealed the existence of a second child, and no pains being present, delivery was again accomplished by the forceps. On further examination, the arm of a third child was found presenting, and its delivery was effected by turning. The placentæ were three, each with a separate cord; parenchyma of two were united. The children all lived, and the case progressed satisfactorily.

Dr. Madge read a paper on a

### CASE OF SPINA BIFIDA WITH TALIPES VARUS.

Mrs. I——, the mother of the child, when a few weeks advanced in her third pregnancy, removed to a new residence, and soon afterwards she met on the stairs a male inmate, whose presence in the house she was not aware of, and who was deformed with a crooked spine and club-feet. The sight of this deformed person, who was making struggling efforts on "all fours" to get up-stairs, made a great impression on Mrs. I——'s mind; and when the child was born, which occurred at the full term, it was found to have spina bifida in the lumbar region and club-feet. When the child was about seven months old it became suddenly ill, and the tumour, from having been translucent, became opaque, and its surface mottled as if from the effects of a blow or fall. The child died in a few days. Mrs. I—— changed her residence, and has since been twice confined, and the children born have been free from deformity. Dr. Madge said he had not brought the case forward to support any particular doctrine, but had merely stated facts as he had found them. He would not venture to say that the powerful impression photographed, as it were, on the mother's mind in this instance had anything to do with the deformity of the child in utero; but he thought, if the occurrence could only be regarded as a coincidence, that it was a very striking one.

Professor Lazarewitch, of Charkoff, Russia, read a paper

### ON THE INDUCTION OF PREMATURE LABOUR BY INJECTION TO THE FUNDUS OF THE UTERUS.

The author first described the various modes in use for the artificial induction of labour, and showed how their action was limited either to parts remote from the uterus or to the vagina, or to the cervix or cavity of the uterus. He laid down the proposition that the nearer the irritation is to the fundus uteri, the more sure and speedy is the result; and, *vice versâ*, the nearer it is to the orifice of the uterus, the more violent and protracted will be the resulting action. The grounds of this opinion were fully detailed, and proofs given from the practice of the several methods before referred to. The physiology of parturition was considered at some length, with the view of demonstrating that the first step in labour is the separation of the membranes from the uterus; in consequence of this the ovum becomes, as it were, a foreign body, and the uterus begins at once to contract in order to effect its expulsion. Such being the *rôle* in natural labour, the author contended that our efforts in the artificial induction of it should aim at imitating this process, and such he stated was the effect of his method. Several circumstances appeared to prove that the fundus uteri was much more sensitive than the rest of the organ, and hence the inference that to that situation attempts should be made to excite it to action when labour is required. The author next gave a description of the instrument which he uses for this purpose. It consists of a glass syringe, graduated to fluid measure, and capable of holding about eight ounces of water; the piston being in the form of a double screw, so elongated as readily to work up and down by mere pressure or traction. To the end of the syringe is attached a soft, flexible, metallic tube, about six or eight inches long, which is intended to reach the fundus uteri. This tube is first placed *in situ*. The syringe is then filled and fixed to the tube, great care being taken to secure the exclusion of air from every part of the instrument. When all is ready, the piston is slowly pushed down, and the fluid is injected up to the fundus uteri. Twelve cases were given at great length by the author, and the conclusions derived therefrom were, that in all uterine action was set up, two only requiring a second injection to increase the labour pains. The fluid used was warm water at 28°R. The quantity used was, in four cases, 6 oz.; in one, 5 oz.; and in the remaining seven, 4 oz. In all but one case labour pains began immediately, and continued until it was completed, in from three and a half to thirty-six hours, the mean duration being nineteen hours from the time of injection. In one case only death occurred, and that was in no way due to the operation. Nine of the children were born alive; one was still-born, and two died before the operation. Labour was induced for various reasons, and in all the cases the aim of the operator was wholly or partially attained. In the majority of cases no other preliminary measures were adopted beyond attending to the bowels.

Dr. Greenhalgh said he had listened with great attention to the paper of his distinguished friend, whose absence he deeply regretted, inasmuch as he differed from the author in many of the views contained in his communication. For instance, he was not aware that the fundus of the uterus was more largely supplied with nerves than other parts of that viscus; and until that was demonstrated he was not prepared to admit that that portion of the uterus was more sensitive and more alive to any exciting cause than other parts of the organ. He considered that so far from the fundus being less exposed to irritation than the cervix during pregnancy, it was much more so, owing to the position of the fœtus, and the almost constant movement of its limbs throughout a great period of pregnancy. Upon the assumed greater sensitiveness of the fundus over other parts of the uterus the author appeared to base his recommendation that in the induction of artificial premature labour our endeavor should be to arouse the excitability of the fundus, to which end he commends the injection of fluid. Dr. Greenhalgh considered that it was far more rational to imitate nature as nearly as possible; and as labour was imitated by certain changes taking place in the neck, which by reflex action caused contractions of the body and fundus, of the uterus, our first aim should be to set up irritation in, and subsequently to secure dilatation of, the neck—a plan he had pursued for many years with the best results. Nor did he consider the injection of water into the uterus unattended with risk. In one case—the only one in which he had had recourse to that method—alarming symptoms followed; and he had been informed by a former president of this Society of another case in which the death of the patient ensued—a lady in whose case he had twice brought on labour prematurely by puncturing the membranes. With the sponge tent, and ergot in repeated doses, he (Dr. Greenhalgh) had never failed to bring on and terminate labour safely. In some few cases where the membranes were very tough he had deemed it expedient to evacuate the liquor amnii after partial dilatation had been effected, so as to expediate labour.

Dr. Meadows regretted very much that so little time was left for the due discussion of this paper, which he regarded as one of great value and importance. He believed it would be found that the views propounded by Professor Lazarewitch, in regard to the physiological action of the uterus in the commencement of labour, were more correct than those advanced by Dr. Greenhalgh. He felt convinced that, as regards the uterus in natural labour, contraction of the fundus or of the body, or both, preceded any change in the condition of the os and cervix; and the fact stated by Dr. Greenhalgh, that dilatation of the os was the first apparent sign of the commencement of labour, must, he thought, be regarded as proof of some antecedent action above that part. For it was obvious that contraction of the os and cervix was antagonistic to dilatation. Holding this view, therefore, and believing that separation of the membranes from the uterus and subsequent contraction of its upper part were the earliest steps adopted by nature for the accomplishment of labour, he was inclined to agree with the author of the paper in the practice he had recommended. He could not regard the operation as one involving such dangerous consequences as had been suggested; for he had injected the uterus under these circumstances many times, and had never seen any evil results. He had been struck with the facility with which Professor Lazarewitch's operation could be performed; and he should certainly adopt it when opportunity offered.

Dr. Murray and Dr. Martin expressed themselves satisfied, from personal experience, both as regards the safety and the certainty of the operation.

## MEDICAL SOCIETY OF LONDON.

Mr. Henry Smith, President.

The President brought before the Society a specimen of the parts removed by amputation of the leg from a lady who had about twelve months since sustained a compound fracture of the ankle-joint. In the course of treatment bony anchylosis, in a most awkward position, had occurred. The limb was rendered quite useless, and he had amputated the leg below the knee. A paper was read by the President

### ON THE RESULTS OF THE EXCISION OF THE KNEE-JOINT AT KING'S COLLEGE HOSPITAL DURING THE PAST YEAR.

Fourteen of these cases had been operated upon by Sir W. Fergusson, Mr. Partridge, and the author. Of these, twelve had been quite successful, and two patients had died from pyæmia; in two a second operation had been found necessary, but these both eventually did well. Most of the cases had healed by the first intention; no great shock to the nervous system had occurred. No case had been operated upon for deformity alone.

A discussion of some length ensued, in which all the debatable points in the operation were discussed. No novel question was raised. As in former debates, it was argued on the side of the opponents of the proceeding that though it must be admitted that there were certain cases in which excision might be properly performed, there was still a doubt as to the exact nature of these cases. In what cases was it preferable to amputation? What were the ultimate results of the operation?

If the cases of disease of the joint in which the operation was prohibited were elimiated from the list, in how many of those in which it was performed would rest and other means of treatment have been successful in effecting a cure? This question involved another: In how many cases had the operation been unnecessarily performed? It was admitted by some of the opponents of the operation that it might be performed earlier than it had hitherto been done, and it was not wise to delay its performance to a late period of the disease. It was remarked that in some cases the shortening of the limb had been so great as to render subsequent amputation advisable. The speakers in favor of the operation contended that in the majority of the cases operated upon, excision was not only justifiable, but to be preferred to amputation; that in most cases a useful limb was preserved; that the mortality resulting from the operation was not greater than that of any other serious operation; that increased experience had rendered the proceeding easier, the cases in which it should be performed more satisfactorily diagnosed, and the parts to be removed more easily determined.

Several patients who had submitted to the operation were exhibited to the Society.

The speakers were Mr. Bryant, Mr. W. Adams, Dr. Althaus, Mr. Weeden Cooke, Dr Camps, Mr. F. Mason, Mr. A Ebsworth, Mr. Rogers Harrison, Mr. Trevor, and Dr. Kempthorne.

### DROPSY OF THE AMNION.

Dr. Greenhalgh narrated the following case:— He had been called to a patient who had been married eleven years, and she was then five and a half months advanced in her eighth pregnancy. She stated that after her last confinement in January last her abdomen did not decrease in size as in previous labours, and that at the fourth month of her pregnancy she could scarcely move about and could not lie down. On examination on October 22nd the abdomen was found very prominent, and numerous veins were found beneath the integument. Fluctuation was well marked, and in every direction; but at the right iliac fossa there was a doughy non-fluctuating swelling. The vagina was short and lax, and the os uteri fairly dilated. No ballottement could be detected. Was the case one of ovarian dropsy complicating utero-gestation, or was it conception with dropsy of the amnion? Should she be tapped; or should labour, now somewhat advanced, be expedited? The latter course was agreed upon. After the administration of ergot, pains came on, which were followed by rupture of a dropsical amnion. Dr. Greenhalgh pointed out the extreme difficulty, nay the impossibility, of arriving at a certain diagnosis in such cases, and the hazards incurred by those practitioners who recommend tapping a fluctuating abdomen during pregnancy.

The President showed Forty-one Calculi which had come away from the bladder of an old gentleman. Thirty-four of them had passed spontaneously, and seven had been extracted entire by the lithotrite scoop. The former were about the size of peas; the latter were very much larger, and one of them was as big as a hazel-nut. The patient was under the care of Mr. Bloxam, of Ryde with whom Mr. Smith had seen the case in consultation. The case well illustrated the advantages of the small lithotrite in removing entire stones or large fragments. He also showed a large fragment of stone, three quarters of an inch long and nearly half an inch broad, which he removed with this instrument.

The President likewise exhibited a large Fibrous Polypoid Tumour which he had removed from a boy in King's College Hospital, and whose case has already been reported in this journal.

An ingenious Inhaler, sent for exhibition by Messrs. Curtis and Co. of Baker-street, was then shown to the Society. It possesses the advantages of portability, and safety and facility of application, and will, no doubt, come into general use.

Mr. Spencer Watson read a paper on

### OBSCURE SURGICAL DISEASES OF THE FACE.

The paper consisted of a review of a number of cases in illustration of the difficulty of diagnosis —1st, of diseases of the deeper structures, such as the orbit, antrum, and jaws; 2ndly, of those of the superficial parts. Amongst diseases of the orbit, abscess connected with disease of the bones, and involving cerebral meningitis as its ultimate consequence—solid tumours and simple malignant growths—were shown to give rise to very similar distortion of the features, and to have been mistaken for different diseases by some of the most eminent surgeons. Abscesses and diseases of the antrum were then reviewed, and cases cited in which solid tumours were complicated by abscess of this cavity, and in which the presence of purulent discharge was only accidental. In another case, the superficial character of the swelling for some time resembled a solid growth, but ultimately terminated as an abscess connected with necrosis. The means of discriminating between the various forms of swelling of the superficial parts of the face resembling erysipelas were then pointed out; and a series of cases of ulcers of the face originating from syphilis was given, in all of which there was for a time some obscurity as to their origin, but in which the progress ultimately cleared up the history. In two cases the swelling had so far resembled solid tumours as to make the surgeon propose their removal by the knife. The paper was illustrated by preparations drawings and photographs.

A discussion took place, in which Mr. Weeden Cooke, Dr. Cholmeley, the President, Mr. Risdon, and Mr. Francis Mason took part.

Mr. T. Bryant exhibited the first specimen, a Bony Tumour of the Femur, or Osteo-chondroma, removed from a woman aged thirty-four, and which had apparently taken its origin from a blow, inflicted about three years and a half since. This was followed by pain and swelling about the inner condyle, and subsequent increase in the size of the limb. The tumour weighed nine pounds. Dr. Moxon, who examined it, believed that it arose from the deep part of the periosteum.

Mr. Bruce handed, for the inspection of the members, the perforated chest-wall and lung of the murdered bandsman, M'Donnell.

Mr. Spencer Watson explained the history and pathology of a case of Blood Cyst of the Thyroid Gland, in a living subject aged sixty-one, which had been growing for twelve years, had been tapped and injected, and is now in process of cure, although at one time it reached from below the lower jaw to the clavicle.

Mr. Curling, Mr. Simon, and Mr. Byrant related cases in which tapping and injection had been generally successful; and agreed that the presence of blood was to be regarded as an accidental phenomenon superadded to the cystic growth.

Mr. T. Smith brought for exhibition a boy in whom a large portion of the ribs on the left side of the front of the chest were deficient.

Dr. Duffin and Dr. Kelly showed the bowels of a man in whom the operation of colotomy had been performed successfully, but who died on the eighth day from peritonitis.

Dr. Greenhow exhibited a case of Addison's disease.

Dr. Murchison showed a second case of Addison's disease, in which there was no bronzing of the skin, and in which convulsions occurred suddenly just before death.

Dr. Bristowe presented specimens of softened clots of the heart, and a warty growth on one of the chordæ vocalis.

Dr. Wilks exhibited a sample of Chylous Fluid removed from an abdominal tumour in a man under the care of Dr. Ormerod, of Brighton. The patient had been tapped four times, and two gallons of this fluid had been removed on each occasion. Its specific gravity was 1·016; it contained small granules, but no sugar, no fat-globules, and no caseine. Dr. Wilks referred to several recorded cases of a similar kind, and said there was no doubt that in all cases there was obstruction and dilatation of the lymphatics. He referred especially to one case exhibited some time since before one of the societies, in which the lymphatics of the thigh were visible and prominent, and whence milk-like fluid flowed; in fact, the patient, a man, the last time he (Dr. Wilks) heard of him, was seeking to try his hand at "wet-nursing."

Dr. Semple gave an elaborate description of a liver twelve pounds in weight, which was fatty.

Dr. Wilson Fox introduced an example of Embolism of the Middle Cerebral Artery in which "canalisation" had been accomplished, one part of the artery, however, being occluded. The interest of the case consisted in the temporary recovery of the man by the partial re-establishment of the circulation. Dr. Murchison, who had seen the patient, stated that he was suddenly seized with acute pain in the right side of the head, followed quickly by paralysis of the left side. The man had had acute rheumatism.

The last specimen shown consisted of several Six-legged Acari, which Dr. Hilton Fagge had obtained from the crust of an eczema complicated by scabies, by boiling the crust in a weak soda solution.

Mr. Simon mentioned, before the meeting separated, that Dr. Roustan, of Cannes, had presented to the Society his work on the Inoculability of Tubercle; but, as they had no library, he proposed to present it to the Medico-Chirurgical Society.

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**A Society has been established in Vienna for the purpose of helping to abolish the long dresses worn by the ladies, which are regarded as not only an obstruction to street traffic, but also, by raising enormous clouds of dust, a cause of considerable danger to the lungs and eyes. The members bind themselves, "the instant they perceive a lady with a long train in the street, to tread on the same with such force as to produce a considerable rent in the dress." Any legal expenses are borne by the society.**

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# Editorial.

## MICROSCOPIC FUNGI AS THE CAUSE OF DISEASE.

The question of the connexion (if any) which subsists between the prevalence of fungoid plants and disease is one on which we have more than once dwelt of late. Some recent observations received from the Mauritius lend additional importance and interest to the subject. The opportunities for collecting and analysing all the facts have not hitherto been embraced and cultivated sufficiently to warrant us in making any positive deductions; but there are now a good many facts, all of which appear to be steadily converging towards establishing the connexion of certain diseases with the presence and action of minute fungi. It would be wearisome to enter into all the details. But Dr. J. H. Salisbury appears to have re-excited attention to this interesting subject. He marshaled what looked like a formidable array of facts in favor of the view that the active element in the malarious nature of any given locality was intimately associated with low forms of vegetable growth; and that such growths, when received into the human system, developed and reproduced themselves therein, and induced the morbid phenomena which characterise malarial fevers. Scattered through medical and scientific journals, a solitary fact or suggestion was here and there to be found which threw some light on the matter. In the last number of the *American Journal of Medical Science*, Dr. Salisbury has propounded a startling hypothesis relative to rheumatism. He states that the blood contains masses of minute spores, and bundles and knots of minute algoid filaments (*Zymotosis translucens*); and he believes that it very probably gives plasticity to the colorless corpuscles, and favors their mutual adhesion into masses, which lead to embolism in the vessels and the symptoms of rheumatism. He affirms, moreover, that there is a peculiar algoid growth in the sores of syphilis. Quite recently, as our readers are aware, Dr. Massy, of the army medical staff, published researches and experiments in relation to malarial fever; and now we have those of Dr. Heinrich Schmidt, of the Grand River Depôt Hospital in the Mauritius, affirming in very positive terms that the immediate or proximate cause of the late epidemic there was to be referred to the presence and action of low vegetable organisms.

The subject may be said to have been advanced one step further by Dr. Schmidt having supplied something in the way of counter-proof. If these vegetable fungi were invariably present in the air about malarial soils, and in the viscera and excretions of those laboring under paludal fevers, the fact was very suggestive of the connexion being something more than an accidental one; but it was nothing more. The vegetable organisms might merely be a product of the same conditions that generate malaria, in consequence of those conditions being favorable to the development and rapid reproduction of lowly organised vegetables; and, in that case, the malarial diseases and the fungi are the twofold products of one and the same cause, their relation being that of co-existence only. Owing, however, to the sagacity of Dr. Francis Reid, Dr. Schmidt was able to carry out some experiments which appear to go some way towards corroborating his view of the part played by vegetable germs as the excitants of disease. If, argued Dr. Reid, the ague and dysentery of the Mauritius essentially depend upon these causes, then the power of agents which possess the property of fermenting such vegetable growths—such as sulphur, sulphurous acid, and its compounds—ought to be as much manifested within as without the body. If we succeed by them in curing the febrile paroxysms, and preventing their return for a considerable time, and if, moreover, persons exposed to malarious influences found that sulphur or sulphites procured them immunity from aguish diseases, while others, not so protected, were attacked by them, then there certainly appears to be very little room for doubt that ague essentially depends upon those vegetable germs which these remedies destroy. And it is here that Dr. Schmidt's experience comes in. He states that he has already seen enough to convince him that these remedies have exerted wonderful curative and prophylactic properties.

Dr. Schmidt has published his views of the nature of the late disease in the Mauritius in the *Commercial Gazette* of that island. He states that in a long-continued series of observations, in which he subjected particular organs or their secretions, in the case of persons who died of fever, to minute microscopical examinations, he invariably found the lining membrane of the stomach covered with a multitude of very minute plants closely resembling the fermental of *Cryptococcus cerevisiæ.*

> "These parasites," he writes "often cover the whole intestinal tract, and on living persons suffering from fever I can constantly detect them in the secretions on the corner of the mouth, on the tongue, on the eyes, and even, but not always, over the whole surface of the skin. Sometimes they were perceptible on the surface of the lungs, but I never could detect them in the blood. ...... Some of these parasites appear, under the microscope of 800 powers, quite hollow (*mycelium*); others contain nuclei and spores (*receptacula*); others, again, show cell articulations. Between the reticulated meshes the spores are embedded. In the secretions of entirely healthy persons I was not able to detect these parasites."

In another series of experiments Dr. Schmidt detected allied growths in the water taken from isolated pools near the bed of the Grand River, and in water taken from places where the water of the Grand River mingles with that of the sea and exposed to the sun until covered with a green film. Dr. Schmidt is inclined to connect the poisonous fever with the presence of the growths described.

There is some reason to think that the cause of intermittent fever is something portable—and potable, also, we might add. M. Boudin mentions a very striking illustration of this. Some French soldiers embarked at Bône on board three transports for conveyance to France. One of these transports was called the *Argo*, and she carried 120 men; of whom 13 died, and 98 of the remaining 107 were landed at the Lazzaretto Marseilles, suffering from fever of a distinctly malarial type. No cases occurred on board the other transports. An inquiry ensued; and it was discovered that four water-casks shipped on board the *Argo* were filled in the hurry of embarkation with water from a marsh at Bône, and the soldiers were supplied from these casks. The crew were all healthy, and they obtained drinking-water from a separate source, furnished by the Victualling Department of the Navy.

There are, no doubt, very many circumstances connected with aguish fevers which seem explicable on the hypothesis of their dependence on cryptogamic plants: such as the very circumscribed limits within which malaria often prevails; the attendant moisture; the special prevalence and activity of malaria during the night; its affinity for low-lying ground, and the barrier which a mountain chain opposes (which was notably the case in the Mauritius); the protective influence of a belt of trees, which appear to act as a filter to the air, depriving it of its noxious properties; the portability, as we have seen, of the poison in water; and the frequency with which diseases of fungoid origin attack the trees and plants of malarious neighborhoods. Still, we hesitate to accept Dr. Schmidt's theory as yet established; and we regret that he did not follow out and multiply his investigations fully, so as to substantiate his position beyond all reasonable doubt. One thing is quite certain: it is not likely that he will ever again have opportunities presented on anything approaching the scale that was present in the Mauritius. During that epidemic it is calculated that nearly 30,000 persons in all fell victims to the fever; of which number no less than 20,000 at Port Louis (or one-fourth of the inhabitants) perished in seven months—a relative rate of mortality probably unprecedented in modern times, and reminding us of the epidemics of the middle ages, or those described in the Jewish records.

## THE HYGIENICS OF BOAT RACING.

We apprehend that the profession will agree on the main points raised by Mr. Skey, in the columns of *The Times*, as to the injurious effect of the violent and long-continued exertion to which the university crews are subject in their annual boat-race upon the Thames. We are not able to go so far as to endorse the opinion of Dr. Hope, that there is no cause of heart disease so common as hard exercise in rowing, seeing that rheumatic fever and several other states more frequently produce it; neither is it quite correct to say, with Mr. Skey, that it is a case of death or victory; but there can be no question that "it involves a draught on the muscular, and we should add nervous and respiratory, powers of those engaged in it more or less injurious to their future health, some temporarily, some permanently."

Great stress has been laid by the apologists, "Broad Blue" and Mr. Willan, upon the selection and previous habits of the crews, and upon the training carried out for weeks before the race; and they add a denial of the strain produced by the race itself, and its consequent ill effects. Let us examine briefly each of the palliating circumstances thus brought forward.

In the first place, Mr. Willan informs us that the men selected are well known to be strong, skilful, and of good constitution; that they are, moreover, picked out from those who have been accustomed to rowing in races for amusement for four or five years, both at school and college. And this is no doubt the case. Nevertheless it must be admitted that the athletic exercises of the public schools and universities, rowing included, whilst they promote health and development of strength, do not give the same capacity for physical endurance that is afforded by a life of labor; and it is probable that the strongest member of a university crew would find his powers overtaxed by the ordinary day's work of a common waterman. Habitual labor is essential to the production of that quality of muscle which forms a basis for violent and long-continued exertion. Such kind of muscle is not acquired even by weeks of training, and scarcely by regular gymnastics. Time is essential to its development and it is but rarely found either in the scholar or the student, in whom its want is too often compensated by the stimulus of pluck and emulation; the nervous and muscular systems being supported temporarily by an effort of the will, leaving them weakened or permanently injured when the strain is over.

But, in the next place, let us grant the existence of sufficient strength, and accept the definition of "training" to be as "Broad Blue" states, the preparation of the internal organs for violent and repeated exertion of the strength. The crews row in steady practice for a month, and submit for six weeks to a peculiar regimen; and the question is whether the training thus pursued will enable the heart and lungs to bear the strain of the race without the risk of injury. Before entering upon this part of the argument, it is necessary to observe that the action of rowing interferes more directly with the respiratory process than almost any other exercise. In running—which, however, is equally liable to injurious excess—it is within the power of the voluntary muscles to regulate the rate of the respiratory movements; and it is well known that a well-expanded chest and rhythmic breathing greatly diminish the disturbing effects of exercise upon the heart and lungs. But in rowing the chest is nearly always fixed, and the respiratory movements are only possible in the short interval of rest at the termination of the stroke. As the racing pace is forty strokes per minute, the rate of respiration is doubled, and the act itself, being necessarily shortened, is reduced to a mere involuntary gasp. Under these circumstances the lungs become rapidly congested, and the heart seriously oppressed.

Now we are told by Mr. Maclaren that the system of training pursued at the universities, instead of making the men stronger in muscle, and more accustomed to violent exertion, has exactly the contrary effect. He says the best men fall off when the exclusive training exercise for the race begins. Under it a powerful man dwindles: and this, not from "training down," as the phrase goes; for the reduction is not in weight only, but in girth and tension and contractility of muscle, and in the stamina which gives endurance of fatigue. Nor is this surprising. There is a superstition that exercise "takes too much out of a man;" and so, of twenty-four hours, they lie in bed nine, and lounge about a dozen more; less than an hour being devoted daily to really active work. And then as to diet: this and that article are supposed to be bad for wind, and so the ordinary wholesome and varied food is put aside, and the meals of half-cooked beef and mutton are helped down by toasted bread. The most natural demand of the body is seriously restricted; water is not allowed, and the quantity of fluid taken as beer or tea is not regulated by the degree of thirst which is the natural monitor, but by an empirical rule which is supposed to suit all constitutions alike. In fact, instead of training the whole body into a well-balanced condition of perfect health, and the heart, lungs, and muscles to peculiar exertion, the university system seems based upon some crude ideas of "getting rid of flesh," and of resting in order to reserve the natural powers of the body for the last great struggle. No wonder that when it comes they are seriously distressed. We have ourselves observed the condition of the crews at the termination of a race, and can confirm the general description given by Mr. Skey.

The men look utterly exhausted. Their white and sunken features and pallid lips show serious congestion of the heart and lungs, and the air of weakness and lassitude makes it a marvel how such great exertion should have been so nobly undergone. We have repeatedly seen the after ill effects—spitting of blood, congested lungs, and weakness of the heart and great vessels from over-distension of their walls; and we are therefore of opinion that some restrictions should be put upon the candidates for boating honors, and that the regulations for training should be based upon scientific principles rather than the crude dogmas of a blind experience.

In making these strictures we have no desire to deny the beneficial effects of rowing or the necessity of racing. Emulation has its advantages as well as drawbacks. Men of spirit will not be content with less than struggles *à l'outrance* in any department of amusement or of work; and whilst, therefore, we cannot agree that the University Boat Race is a national folly, we are of opinion that the powers of endurance, as applied to gentlemen, are too severely taxed, and that the greatest precautions should be taken by every member of the crews lest evil consequences arise.

## DR. RICHARDSON'S NEW ANÆSTHETIC.

NOBODY will be surprised to hear either of the discovery of a new anæsthetic or that the discoverer is Dr. Richardson. Of all discoverers, Dr. Richardson is the most prolific. True, he has to discover sometimes that all his conclusions are not right—in other words, that his discovery is a false one. But this is one of the hardest discoveries for a man to make; and Dr. Richardson, to his credit, made it lately, in reference to the course of the coagulation of the blood. Yet his investigations are always of the highest importance, and most suggestive in their bearings upon practical medicine. Every man has his weak point, and we would just hint to Dr. Richardson, out of our regard for his genius, that he is somewhat apt not thoroughly to complete one discovery, and make sure of its being a real one, before hastening in search of another. A short time since we were all gratified by Dr. Richardson's announcement of a device for the production of local anæsthesia. This was a real discovery. There can be no doubt about the fact. But the utility of the method, the extent of its applicability, and the objections to its application, are still matters upon which there is a great difference of opinion. The difference can only be removed by evidence from all quarters, the collection of which would be the completion of the discovery; and Dr. Richardson could do no greater service than collect this evidence. He seems disposed to leave—not so unreasonably certainly as in the case of the coagulation of the blood theory—the merits of local anæsthesia to be determined by experience and time. A week or so ago he gave an account of the last discovery which he has made. Dr. Richardson will not understand us to be writing otherwise than in the most friendly spirit either of him or his discoveries. It is because we are impressed with his talent for discovery that we wish to see the most made of it. We are anxious to get the greatest amount of good and the least amount of disappointment out of it. So while we should like to chain Dr. Richardson down to the completion of one or two practical discoveries, we must take his contributions to science as he pleases to give us them.

His last discovery seems a real one, and it may prove to be important: the anæsthetic power of the bichloride of methylene—a fluid like chloroform in appearance and odor, but differing in its boiling point and its specific gravity. The bichloride of methylene boils at 88° Fahr., and has a specific gravity of 1·34; chloroform boils at 142°, and has a density of 1·49. This substance has chemical relations also with tetrachloride of carbon, the anæsthetic properties of which are known. Chemically speaking, the bichloride of methylene is constructed from the organic radical, methyl, represented by $C\,H^3$, by the withdrawal of one atom of hydrogen, giving methylene $C\,H^2$, and the addition of two of chlorine—thus, $C\,H^2\,Cl^2$. The composition of chloroform is $C\,H\,Cl^3$. It differs from the bichloride of methylene in having one atom of hydrogen less and one atom of chlorine more in its composition. The radical methyl may enter into composition with chlorine, giving rise to the chloride of methyl, $C\,H^3\,Cl$, which was discovered in July to have gentle anæsthetic properties by Dr. Richardson. We have, then, a series of compounds, C H H H Cl (chloride of methyl), C H H Cl Cl (bichloride of methylene), C H Cl Cl Cl (perchloride of formyle or chloroform), and C Cl Cl Cl Cl (tetrachloride of carbon), all of them anæsthetic, Dr. Richardson having discovered the anæsthetic properties of the first of these in July last, and of the second in August. That gentleman has experimented on himself and on animals with these new anæsthetics; and two cases of ovariotomy in the practice of Mr. Spencer Wells have apparently proved satisfactorily the anæsthetic power of the bichloride of methylene, which, as it is intermediate in composition, Dr. Richardson regards as also intermediate in strength between chloride of methylene and chloroform. The anæsthesia induced by the bichloride of methylene in pigeons comes on with less struggling than in the case of chloroform; it is more prolonged and quiet, and the recovery from it is quick. In an animal killed by it, both sides of the heart and the lungs contained blood.

Dr. Richardson has drawn the following conclusions:—

> "In its action the bichloride of methylene is more gentle, but as effective as chloroform; it produces less struggling and less vascular excitement. Its narcotic effects are equally prolonged. It acts very uniformly on the nervous centres. It produces sometimes vomiting. When it is carried so far as to kill, it destroys by equally paralysing the heart and the respiration. It interferes less than other anæsthetics with the muscular irritability."

Dr. Richardson expects that it will prove less fatal than chloroform, which causes death, he estimates, once in fifteen hundred cases. He is very right, however, in speaking diffidently on this point, for there are no facts to justify confidence.

# Medical Annotations.

"Ne quid nimis."

### CURIOUS EPISODE OF THE CATTLE PLAGUE.

NOT long since, Mr. Nunn, surgeon to the Middlesex Hospital, was applied to by a large dealer in calves' heads and neats' feet for advice under the following circumstances. Since the occurrence of the cattle plague the workmen employed in preparing the neats' feet had suffered very severely from a pecular kind of inflammation of the skin of the hands. This created alarm almost amounting to a panic, the belief being that, in some way or other, the cattle plague poison was contaminating the systems of the workpeople. Mr. Nunn found, on examining some of the hands, that the local symptoms were sufficiently severe to justify alarm. The skin at the root of each nail was completely denuded of epithelium, was red, swollen, and sensitive, so much so that the eventual shedding of the nail seemed inevitable. Between the clefts of the fingers, and to a certain distance above the wrists, were numerous angry-looking pimples, whilst the skin of the hand generally was inflamed and somewhat thickened; but there was neither inflammation of the lymphatics nor the slightest constitutional disturbance. Mr. Nunn visited the establishment and found that the neats' feet, on their arrival from the slaughterhouse, are soaked for a certain time in water, and then scalded, so that the hair and hoofs may be removed. In this way a beautifully clean, rosy-tipped preparation is produced, which is used for boiling down into jelly and soup, and for other food purposes.

How could the alarming symptoms be accounted for? This seemed very difficult. In the first place, carcases of animals affected with cattle plague could not find their way to market, and no unusual appearance had been detected in the feet upon which the workmen had been employed. On the other hand, the special inflammation of the roots of the nails and skin had never been previously observed, whilst the processes to which the feet were subjected were, it was said, precisely the same as those used from time immemorial. Whence then was derived the irritant which was causing so much suffering? Mr. Nunn concluded that, since, in accordance with official regulations, all cattle-trucks and lairs were purified with lime or lime-wash, the carbonate of ammonia derived from the manure with which, as a rule, the animals' feet are covered, would be converted by the lime into caustic ammonia, and this being dissolved in the water used for cleansing the neats' feet would certainly act injuriously on the workmen's hand immersed in the water. Mr. Nunn therefore directed that bowls of common brown vinegar (which, by law, contains a small percentage of sulphuric acid) should be placed in the work-sheds so that the men could from time to time rinse their hands with this fluid, and that glycerine should be provided with which they might cover their hands on leaving work. The plan was entirely successful.

### A SURGEON OF THE GUARDS' ESTIMATE OF THE PRUSSIAN TROOPS.

THE new Army Medical Department Blue-book contains a paper which we have perused with more than ordinary interest. It is a report by Dr. Bostock, surgeon of the Scots Fusilier Guards, on the Medical and Sanitary Services of the Prussian Army during the late campaign in Bohemia. While Dr. Bostock saw much in the Prussion system to call forth his very warm admiration, it must not be supposed that he writes entirely in a strain of indiscriminate eulogy. On the contrary, he expresses himself as anything but gratified with the general sanitary arrangements in the cantonments and field hospitals. We learn that the Prussian soldiers on the march were delighted to get rid of the "monkey on the back," as they called the knapsack, and they fared quite as well as their neighbors who were encumbered with them. Some regiments, however, did carry their knapsacks throughout the campaign, and only laid them down on going into action. The greatest distance covered in a single day was thirty miles, but many divisions marched twenty miles for several days in succession. A few men, complaining of weakness in the chest, fell out, and a very few others, of dissipated habits, were unable to keep their places in the ranks.

Dr. Bostock asks, to what is this excellent marching and power of endurance in an entire army to be attributed? Certainly not to the clothing, which is only a slight improvement on the dress of our own soldiers, and is equally ill adapted for hard exercise, nor to the light weight or convenience of the equipment, which is unnecessarily heavy and cumbersome. Dr. Bostock believes it to be entirely owing to the superior physique, and suitable age and condition, of every man composing the army. The commanding officer of one of the regiments of the Guard Corps told him that his battalion took the field with 1002 men, all between the ages of twenty and twenty-eight; and he was enabled to see about 450 men of this battalion on parade. Dr. Bostock adds, "I never saw a more thoroughly efficient body of men; there was not a weedy young recruit or a decrepid old man among them. They were all strongly-built, healthy men, in the prime of life. Undoubtedly, finer individuals can be found in our own brigade of Guards, and probably the average height of the Prussian regiment is below that of our household troops; but for hard work and prolonged exertion they possess every desirable qualification, and all the other troops were of the same excellent stamp. This high state of efficiency is due to the system of recruiting adopted in Prussia."

### CHOLERA IN THE UNITED STATES' ARMY

A REPORT has lately been issued from the Surgeon-General's Department of the United States' War Department "On Epidemic Cholera among the States' Forces in 1866." This report is of very great interest. It shows very clearly and most instructively the dissemination of the epidemic over a vast tract of country by the movements of troops from two or three infected districts. The first outbreak of the disease among the troops occurred in Governor's Island, New York harbor, subsequent to the infection of the city from Europe. From this locality the spread of the infection by moving bodies of troops is readily traceable to Hart's Island and other posts in the harbor; to Tybee Island, Georgia; to Louisiana, by way of New Orleans; to Texas, by way of Galveston; to Louisville, Kentucky; to Richmond, Virginia; and to La Virgin, Nicaragua Bay. From Richmond the disease was carried to Norfolk, Virginia; from Louisville to Bowling-green, Kentucky. "The probabilities appear to be that the disease was carried from New Orleans up the Mississippi river to various points on that stream, and west of it; and though the whole chain of evidence is not complete, yet there are a sufficient number of known cases of the transfer of the epidemic from one post to another in this region to put this view of the whole movement beyond reasonable doubt." Another principal centre of dissemination appears to have been Newport Barracks, Kentucky, where the disease was introduced from the infected city of Cincinnati, on the opposite side of the Ohio river. Although it did not prevail to any great extent at this post, yet it is in evidence that it was carried thence to Augusta and Atlanta, Georgia; to Nashville and Memphis, Tennessee.

It is not possible to do more than indicate here the principal lines and manner of dissemination of the epidemic in the United States, so far as the troops were concerned, and to direct the attention of the epidemiologist to this instructive and suggestive report. Out of a mean strength of 12,780 men, there were 2708 cases of cholera reported, and 1207 deaths. Of these there were 1749 cases and 706 deaths out of mean strength of 9083 white troops; and 959 cases and 501 deaths out of a mean strength of 3697 colored troops.

### LUNATIC LITERATURE.

THE *Morningside Mirror* has a little obtrusive aspect among the multitude of serials which pours from the press at the present time. It cannot vie with them in bulk and brilliancy of cover, and its appearance is not heralded from month to month by poster or prospectus. But it possesses a peculiarity of its own which at all times and under all circumstances gives it a surpassing interest. It is the monthly journal of a lunatic asylum, and is written and printed solely by lunatics within the bounds of their compelled retreat. It is not easy at first rightly to conceive of a community of lunatics possessing their own journal and cultivating literature. But such is the fact, and the fact is of no recent date. The twenty-second annual volume of the *Morningside Mirror*, the monthly journal of the lunatics living in the Royal Asylum, Morningside, near Edinburgh, "printed at the Asylum Press," is now lying before us. A more wonderful testimony to the management of this institution, and to the enlightened principles which govern the treatment of lunatics at the present day, than the twenty-two years' series of the *Mirror*, cannot well be conceived. The journal is admirably printed, and the contents will repay an attentive study. They are sufficiently varied; and those portions which refer to the entertainments of the patients, reports of lectures delivered in the asylum, concerts, picnics, and other amusements, are particularly suggestive. Among the articles in the twenty-second volume may be noted "Scraps about Natal;" "The Colony of Victoria;" "Patriarchs and the Pentateuch;" "D. T. Brown's Moral Philosophy;" "Sketch of King Robert the Bruce;" "Individual Responsibility;" "Autobiography of a Ship Dog;" "Music;" "A Tale;" and an amusing satirical piece, entitled "A Banquet in Honor of the Reform Bill." Poetry, moreover, is represented by no less than eight compositions, of which, "The Parting" is especially noteworthy. Let us add of the *Mirror* that it is sold for benefit of the reading-room of the asylum, at threepence per monthly number; or it may be obtained by the payment of 3*s*. per annum if delivered in Edinburgh, and of 4*s*. if sent by post elsewhere. Orders and subscriptions may be forwarded to Dr. Skae, Royal Edinburgh Asylum.

### LIGATURE OF THE LINGUAL ARTERIES.

M. DEMARQUAY, the distinguished surgeon of the Maison Municipale, has recently presented to the Academy of Medicine of Paris an interesting communication on the subject of ligature of the lingual artery. After having given the history of twelve cases, in eight of which he operated himself, the other four having been collected from various sources, the author comes to the conclusion that ligature of the lingual arteries is not a difficult proceeding, and that the occasion for the performance of it is by no means of rare occurrence. Ligature of the arteries of the tongue has often been necessary in order to arrest hæmorrhage, and the observation of this fact suggested to M. Demarquay the advisability of applying the ligature in the removal of large and deeply-seated tumours of the tongue. The results of his operations have borne out this view. Demarquay has, however, carried his experiments further, and has used the operation for other purposes than that of merely arresting hæmorrhage. And herein consists the chief interest of his memoir. The ligature of both arteries of the tongue has been attempted with the view of bringing on atrophy of cancerous tumours of the organ, and, as a consequence of prolonging the life of the patients. This experiment has been crowned with success and in all the cases (amounting to three) the object was completely attained; while the sequelæ of the operation were of a most simple kind, and caused no inconvenience save temporary dysphagia, due to the proximity of the artery to the pharynx. In every case the wound was said to have healed easily and rapidly.

### PERILS OF PRACTICE.

An outrageous and at the same time silly, charge has been recently made against a highly respected medical practitioner of Wigton, Dr. McNaughton. A single young woman at the seventh month of pregnancy was attended by Dr. McNaughton, and her weak and puny child died about sixteen hours after labour. The worthy doctor was arraigned before the coroner's court on a charge of having caused the death of the child,—the young woman imagining that, by turning, the doctor had inflicted injury on her offspring. There was not a particle of evidence to support such a charge; it was proved, even, that turning had not been attempted. Dr. Eliot and Mr. Brown (of Carlisle) testified to the proper treatment of the case, and the total groundlessness of the girl's supposition, and this the profession will not fail to note. We can pity the wretched girl for her delusion, which in the agony of her confinement, was perfectly natural, but indignantly condemn the conduct of those about her who encouraged an idea which led to the attempt to sully the unblemished character of an honorable member of our profession without the faintest shadow of reason. The coroner placed the facts in their true light before the jury, who at once returned the verdict, "that the child had died a natural death, and that there was no imputation whatever on Dr. McNaughton." The *Carlisle Examiner*, in strongly condemning those who promoted the inquiry, remarks: "If medical men are to be arraigned on the strength of what patients whose minds are unhinged by suffering may say about them, who would be safe?

### A NOBLE DEATH.

In the year 1864, her Majesty's ship *Bombay* was lost in the river Plate by fire, and so rapid was the progress of the flames that, in the attempts to escape from the burning vessel ninety men and an officer were lost. Dr. Moore, in the introductory lecture to the course of clinical medicine which he delivered at the Mercer's Hospital on the 28th of October, in which he reviewed the aims and hopes of medicine, and the duty of its followers, gave the particulars of the death of this officer, John Keville Smallhorn, who was the senior assistant-surgeon, and referred with pride to the fact that he who so nobly did his duty with the sacrifice of his life, was trained within the walls within which his hearers were assembled. Up to the last moment, when the half-burned spars were falling from aloft, and the boats pulling away, this fine fellow was seen at one of the sick-berth ports, getting out his patients in the midst of the surrounding fire and smoke. One of his fellow-officers shouted to him to jump overboard, if he would save his life; but not till he had secured his *last* patient, a poor boy, did he do so, and when they reached the water a burning log struck poor Smallhorn on the head, and he sank, never to rise. Well might Dr. Moore seize the opportunity of expressing his admiration for such heroic conduct, and of inciting his hearers to cultivate the spirit which actuated their *alumnus*, and which reflects no little honor upon the school to which he belonged.

### M. NELATON'S CLINIQUE.

The principal topic of medical interest in Paris during the last fortnight has been Prof. Nélaton's resignation of his clinical chair at the Faculty. This determination of the celebrated surgeon has been much commented upon. But the fact is that M. Nélaton, whose practice was already one of the largest in Paris, has been overwhelmed with work since the demise of Jobert de Lamballe, of Michon, and of Velpeau. He has, therefore, been compelled to sacrifice his more scientific occupation to the necessities of his *clientèle*. Trousseau had been obliged some time before his death to come to a like determination. M. Nélaton's retirement will be the more deeply felt as it takes place so soon after the death of Velpeau, and the consequent loss of that illustrious surgeon's teaching at La Charité. The cliniques of M. Velpeau and M. Nélaton, owing to the great reputation and well-know ability of the rival surgeons, were the most attractive in Paris, and invariably drew crowds of students and foreign medical visitors to their respective wards.

### APPLICATION OF ANTISEPTICS TO WOUNDS.

The application of antiseptics locally to foul and unclean wounds seems to have found much favor in some parts of the Continent, especially with the Prussians in their military hospitals. An apparatus is there in use by which the spray of a solution of chlorine or other disinfectant is produced. It is made on the principle and plan of the ether-spray producer, but is larger. The bellows, of India-rubber, is strong, and worked by the foot; the tube connected therewith is five or six feet long, it has the usual reservoir of air, and terminates in a metal point. The vessel for the fluid to be vaporised is capable of containing a quart of fluid. It is fitted with two tubes: the one to admit air, the other to pass into the fluid below, and above to be placed on a level with the free end of the tube from the bellows, and to receive the blast from the latter. The success which has attended the local application of disinfectants in the form of spray is said to have been most marked.

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**The Cæsarean Operation.**—A woman, about 35, named Schmitt, in the last stage of pregnancy, was run over by a coal cart on the Boulevard de la Villette, a few days ago, and received such injuries in the head that she expired shortly after at an apothecary's shop, whither she had been conveyed. Drs. Tixier and Sallath then determined to save, if possible, the unborn child, and by means of the Cæsarean operation delivered a fine healthy boy, who appeared in no way to feel the effects of the accident which had been fatal to the mother. —*Quebec Chronicle.*

# Reviews and Notices of Books.

*Illustrations of some of the principal Diseases of the Eye, with a Brief Account of their Symptoms, Pathology, and Treatment.* By Henry Power, F.R.C.S., Surgeon to the Royal Westminster Ophthalmic Hospital; Assistant-Surgeon to, and Lecturer on Physiology at, the Westminster Hospital. 8vo, pp. 631; with 72 Chromo-lithographs. London: Churchill and Sons. 1867.

A book has long been wanted in ophthalmic surgery which would include in one volume a descriptive account of the surgery and diseases of the eye. Many good works have been brought out on special ophthalmic subjects, such as diseases of the accommodation, and injuries of the eye; but during the last few years no attempt has been made by an English author to embrace in a single volume the whole subject of ophthalmology. The work which Mr. Power has now produced will in some measure supply this void. The title of the work hardly indicates its scope. Not only are "the principal diseases of the eye" described, but each chapter is prefaced by a brief account of the general anatomy and physiology of the part of the eye of which it treats. The usefulness of such an arrangement is self-evident; for it is impossible to appreciate rightly the morbid changes in a structure without being first cognisant of its nature and functions in health.

The book opens with seventy-two chromo-lithographs; fifty-four of which represent diseases of the eye and the orbit, whilst the remaining eighteen show the ophthalmoscopic appearances of the morbid states of the fundus of the eye. Many of these colored drawings are very good, but there are some which evidently fail to do justice to the originals, which were drawn by the skilful hand of the author. Opposite to each of the chromo-lithographs, on the corresponding page, there is descriptive letterpress, which gives briefly the account of the case from which the illustration was made.

The book is divided into eleven chapters. The first gives an account of the anatomy of the Orbit, and then treats of the diseases and injuries to which it is exposed. The second chapter, on Strabismus, in which the author describes first the action of the different muscles of the eye, and then the various forms of convergent and divergent squint, is very clear and intelligible. The subject is complicated, but it has been rendered easy by the lucid manner in which it has been handed. The third chapter is devoted to diseases of the Lachrymal Organs, and the fourth to diseases of the Eyelids. The different operations for the relief of ectropion and entropion are here fully described. It is a pity, however, that more care had not been taken in drawing the woodcuts, which are certainly far below the usual standard of excellence. In the fifth chapter the author enters fully into the diseases of the Conjunctiva, which include the various forms of ophthalmia, granular lids, and pterygium. The next four chapters are occupied with the diseases of the eye itself. The various structures which enter into the formation of the eye, and the diseases to which each is liable, are described in succession. The tenth chapter is devoted to wounds and injuries of the eye; and the last chapter gives a good account of the diseases of the accommodation and refraction.

The author, in speaking of the treatment of glaucoma (p. 421) compares the value of the operation of division of the ciliary muscle with that of iridectomy. His bias is decidedly in favor of "cylicotomy," as the operation is termed; and he describes, as the dangers of iridectomy, a series of casualties, which, by those who know how and when to perform that operation, will be regarded as so many phantoms.

In speaking of iridectomy (p. 421), he says, "Cataract is a very frequent result of the operation;" and, at p. 422, "in some cases violent inflammation of the globe succeeds, and in not a few cases the new pupil becomes filled by exudation and neoplastic formations, which gradually obscure and finally abolish vision." The experience of the large majority of the English and continental ophthalmic surgeons will not bear out these statements. No doubt such results may occasionally follow the operation; but they are quite exceptional, and, when iridectomy is properly performed in suitable cases, they are exceedingly rare.

Whilst praising the book, as a whole, we are bound in justice to our readers to state some of its manifest imperfections. In treating so comprehensive a subject as "the principal diseases of the eye" in a single volume, one defect must almost necessarily exist; and that is, the cursorily glancing over of important topics which deserve to be dealt with more fully. Thus tumours of the orbit occupy but little more than a page; and sympathetic ophthalmia and cancer of the eye have not received their full meed of attention. Notwithstanding these omissions, the book is good and practical. It contains much valuable information, and should be read by all who make ophthalmic surgery a study.

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*The Climate of the South of France, and its varieties most suitable for Invalids; with remarks on Italian and other Winter Stations.* By Charles Theodore Williams, M.A., M.B. Oxon., Assistant-Physician to the Hospital for Consumption and Diseases of the Chest at Brompton. Small 8vo. pp. 90. London: Churchill and Sons.

This is a very useful little book. It gives a large amount of valuable information in a pleasant and compact form. It will fatigue neither practitioner nor patient, and yet it gives precisely the kind of information both want for guidance in the event of a flight south in the winter months having to be recommended or sought. Dr. C. T. Williams treats, in successive chapters, of the General Advantages of the Climate of South France, the Physical Aspects, the Health Resorts of the Region, the Medical Aspects and Effects of the Climate on Health and Disease, the Hygienics of Consumption in the South of France, and the Winter Stations of Italy. It is aggravating, even to the healthy, in the midst of London smoke on a cold day in November, to read this glowing description of some of the advantages of the invalid's life in the South of France:—

> "The chief of these is the amount of sunshine which he enjoys for weeks, and even months together, when the sun often rises in a cloudless sky, shines for several hours with a brightness and warmth surpassing that of the British summer, and then sinks without a cloud behind the secondary ranges of the Maritime Alps, displaying in his setting the beautiful and varied succession of tints which characterise that glorious phenomenon of the refraction of light, a southern sunset; while he imparts to the rugged mountains a softness of outline and a brilliancy of coloring which defy description alike by the painter's art and the writer's pen. Owing to this genial influence, not accompanied, as it is in even the most protected of English wintering places, by any sensation of chill or damp, and the chemical effect of which is seen in the tanning of the skin,—owing to the freedom of the climate from rapid and constantly recurring changes of frost, rain, mist, and mild weather, the invalid spends the greater part of the day in the open air, and scarcely knows what confinement within doors means. The exciting causes of his complaint being removed, and the long spell of propitious weather enabling the full influence of the genial atmosphere to act on his frame, his bodily vigor gradually returns, and he finds himself able to enjoy a fair amount of exercise, whether walking, riding, or driving, in a region in which earth, sea, and sky present to his observation phenomena so varied in form, so brilliant in color, and so wondrous in beauty, that an inexhaustible feast unfolds itself to his astonished gaze, in the enjoyment of which his attention is withdrawn from the contemplation and ofttimes the exaggeration of his own symptoms, and directed to higher and nobler objects."

In Chapter II. Dr. Williams ventures on some speculations concerning the source of the *mistral* which are very ingenious, and which would have tempted some consideration, but that giving them undue prominence would have conveyed, perhaps, an erroneous notion of the practical nature of his work. The following cautions, however, respecting Italian cities, will be read with much profit:—

> "I may, however, generally state, that a careful survey of the large cities of Italy, such as Rome, Florence, and Naples, has convinced me, as it has many other medical men, that the excitement and fatigue of sight-seeing, the gaiety, and the exposure to extreme temperatures, which a residence in them commonly involves, render them quite unfit winter stations for pulmonary invalids. These, in the midst of the temptations offered by the treasure-houses of ancient and modern art, forget the objects for which they have been exiled from home, and foolishly expose themselves to cold, fatigue, and other dangers; thereby frustrating the intentions of their physicians, who have recommended a winter in the south; relying that patients, if they quit their native land for the improvement of health, will have the good sense to keep the object of their exile always in view, and not expose themselves to unnecessary and often fatal dangers, but rather devote their attention wholly and solely to reaping the full advantages to be derived from the substitution of a southern for a northern winter. Far safer and wiser is it to lead a quiet and tranquil life in one of the above-described health resorts, apart from the fascinations of draughty picture-galleries, and cold museums of sculpture; and to rest contented with the ever-varying and beauteous feast of nature's charms, bounteously spread and safely partaken of, and the enjoyment of which is doubly enhanced by a knowledge of the great laws of natural science, which, by the accuracy with which they interpret nature, testify to their own truth."

Dr. William's book will prove very serviceable to the active practitioner.

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*An Experimental and Clinical Treatise on the Regeneration of Bone, and on the Artificial Production of Osseous Tissue.* By L. OLLIER, Chief Surgeon to the Hôtel Dieu at Lyons. In Two Volumes. Paris: Victor Masson and Son. 1867.

*Traitè Expérimental et Clinique de la Régénération des Os, et de la Production Artificielle du Tissu Osseux.* Par L. OLLIER.

M. OLLIER, whose valuable investigations on the vital properties of the periosteum are so well known, has, during the past few years, been directing his attention to the practical application of the principles he has already established by his physiological experiments, and has recently laid before the profession the results of his labors on this subject in the important work now before us.

The first volume is devoted to a full consideration of the author's experiments and observations on the physiological bearings of the question. Commencing with a history of the subject—which is divided into two periods, one of mere observation, and a second of observation aided by experiment,—Mr. Ollier proceeds to describe the share taken by the periosteum in the process of ossification. This he shows to be the result of an activity inherent in the tissue itself, and in no way related to its special vascular supply, or to its connexion with surrounding parts. He candidly confesses to having seen reason to change the views he once entertained of the nature of the subperiosteal layer, to which he formerly gave the name of "subperiosteal blastema," but which he now views as consisting of proliferating cell structures according to the principles of the cellular pathology.

The regeneration of the periosteum after removal, and the effect upon the bone when exposed are then considered in detail. It appears, as the result of many experiments, that necrosis does not necessarily follow simple removal of the investing membrane, provided further injury be not inflicted upon the subjacent bony surface; and that the periosteum itself may be reproduced indefinitely as a mere cicatricial tissue, but that it ceases to perform its osteogenic function at a very early period.

A considerable portion of this volume is devoted to a consideration of the process of development and reproduction of the articular ends of the long bones—a subject to which M. Ollier has directed special attention, and which constitutes most valuable contribution to conservative surgery. He states in his preface that he has examined this question from a different point of view from that in which it has been considered by former experimenters; and he lays great stress upon the importance of maintaining the continuity of the periosteal sheath, in order that a true articulation may be obtained of the same type as that which has been removed, whether ginglymoid or orbicular; results which he justly considers the ordinary operations for excision are incapable of effecting although mere mobility of the bones may be thus obtained.

The second volume contains the results of the author's clinical observations on the treatment of diseases of the bones. The subject of necrosis, and the influence of the surrounding tissues in producing the new bony case, are treated of in the earlier chapters; but the greatest part of the volume is occupied by the question of subperiosteal resection, and by a detailed account of the various precautions to be taken to secure the success of the operation, which relate especially to the method of raising the periosteum from the bone. Several cases are described at length, particularly that of a girl aged fifteen, from whom the entire upper half of the left humerus was successfully removed by the subperiosteal operation, the patient recovering with perfect use of the arm and shoulder-joint. As might be expected, age has a most important influence in determining the prospect of success in this procedure, which is indeed almost in direct proportion to the youth of the individual. Thus from birth to the age of fifteen or eighteen the success is most marked; from twenty to twenty-five the results are satisfactory; whilst after thirty or thirty-five the reproduction of bone cannot be reckoned upon. Erysipelas is of course the great enemy to the success of these operations, frequently causing much delay in the consolidation of the parts; but even in spite of this complication satisfactory results may be obtained. With regard to time, from three to eight months are generally required if any considerable extent of bone has to be reproduced. In the case mentioned above the convalescence occupied rather more than five months.

M. Ollier has successfully applied this method of operating, not only to the shafts and epiphyses of the long bones, but also to the bones of the face and skull, and has found that even after trephining the bone may be satisfactorily restored.

The volume concludes with a chapter on Osteoplasty, and the clinical value of these operations, together with the precautions to be adopted to ensure success.

In conclusion, we must express our sense of the high merit of M. Ollier's work, which seems destined to inaugurate a new era in the treatment of diseases of the bones and joints.

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*Statistiques Médicales des Hôpitaux de Paris*, 1861–62. Paris: Paul Dupont. 1867.

M. Husson, the accomplished and energetic Director of the French Administration Générale de l'Assistance Publique, has just issued, as the first instalment of a work intended to be continued in a regular annual series, the two volumes of which we hasten to acknowledge the great importance to the medical profession, who, so far as this country is concerned, will find in them a subject of admiration, strongly mingled with regret that we have nothing whatever of a similar nature and scientific value to put in comparison.

In 1860, M. Husson was placed at the head of the Hospital Administration of Paris, and having a warm regard for the advancement of science, he was soon struck by the abundance of the materials at his command for throwing light on the causes and progress of disease, and the effects of varied treatment offered by the 100,000 patients of both sexes and of different ages, admitted annually into the hospitals and infirmaries under his supervision. Prior to 1860, numerous reports had from the beginning of the present century been made, containing information more or less exact in reference to the statistics of French hospitals; but, as M. Husson observes, although very interesting, they were deficient in necessary detail, and the want of any system of co-ordination has left them isolated fragments—rough material, which may possibly be some day utilised. Firmly convinced of the importance of a system of hospital statistics, and desiring to adopt a basis which should ensure harmonious working, M. Husson lost no time in calling to his aid a Commission, composed of fourteen of the most distinguished medical representatives of the Paris hospitals, to consider and report on the best practical means for realising the desired object. Dr. Grisolle, Physician to the Hôtel Dieu, was named President of this Commission, and with him were associated Drs. Chassaignac and Tardieu (Lariboisière), Dr. Cullerier (Midi), Dr. Guérard (Hôtel Dieu), Dr. Guillot (Necker), Dr. Beau (Charité), Dr. Hardy (Saint Louis), Dr. De Mussy (Pitié), Dr. Béhier (Beaujon), Drs. Marjolin and Bouchut (Sainte Eugénie), and Drs. Depaul and Broca of the Central Bureau. Mr. Tardieu, who acted as reporter of the conclusions of the Commission, acknowledges, with a graceful compliment, a communication received from an English medical statist, Dr. Steele, of Guy's, whose system of hospital records "fournit des renseignements très-dignes d'intérêt pour la médecine, la chirurgie, et l'art des accouchements."

The justification of M. Husson's design is thus expressed by M. Tardieu:—

> "The mere collection of certain definite data, such as sex, age, season; the information gathered by the medical visitors in reference to hygienic conditions, professional and social, and from diseases considered in their nature, complications, duration, and termination,—the *rapprochement* of these several elements must naturally tend to elucidate the history of the causes and of the march of disease, the comparative value of a great number of surgical operations, and the general conditions of pregnancy, accouchment, and the puerperal state. The great etiological influences of sex, age, season, professional hygiene, medical and surgical pathology, operative medicine, and obstetrics, will then undoubtedly receive from medical statistics unexpected light. One such result, if it be multiplied by the number of patients during several years, is well calculated to excite the ardor of all who may be able to contribute to obtain it, and above all, of those hospital physicians and surgeons whose zeal for humanity, love of science, and indefatigable devotion, have placed so high the fame and the glory of the medical school of Paris."

The plan proposed by the Commission having been adopted, the necessary administrative arrangements for collecting and digesting the hospital returns were placed under the control of an experienced hospital *interne*, Dr. Ollivier. M. Husson needed not to apologise for delay as regards the publication of the volumes before us, which relate to the years 1861 and 1862. As the first-fruits of an elaborately conceived plan, they sufficiently attest the labor and thought which have been bestowed upon their preparation. Nevertheless, M. Husson hopes that increased executive facility will enable him eventually to publish the reports for each year at regular annual intervals.

The plan of the two volumes is uniform; but the second (1862) is the more elaborate of the two. The matter is divided into six parts, preceded by a summary table, giving general statistics of admissions and discharges in all the hospitals and infirmaries. The first four parts embrace the mortality from various causes (medical or surgical) in the general and special hospitals, the *maisons de retraite*, and the *maisons municipales de santé*; the fifth part gives the statistics of surgical operations; the sixth part specifies the age, domicile, and civil condition of the patients, and the proportion of deaths from different causes. The second volume (1862) contains many more tables than the first (1861); there is a greater subdivision of facts; many new features are introduced,—for example, statistics of resections, tracheotomy, and operations on the bladder and urethra, as well as tables for the information of those who desire to investigate the effect on the mortality of putting a large or a small number of patients together in one ward, or of the relative advantages of large as distinguished from small hospital buildings. We do not pretend to have critically examined these voluminous statistics, being content, for the present, to call attention to their publication, and to assure our readers that they will find therein abundant matter for profitable study.

In concluding the prefatory remarks, in which he commends the results of the labors of himself and colleagues to his departmental superior, the Prefect of the Seine, M. Husson présents us with a picture of Imperial providence, which cannot but create amongst the profession in England a desire which, however, is not born of envy:—"De nouveaux hôpitaux sont créés; les établissements hospitaliers existants sont eux-mêmes l'objet d'incessantes améliorations, et se perfectionnent rapidement sous le rapport de leurs dispositions intérieures et de leur hygiène, en même temps que les parties les plus pauvres de laville voient s'élever de nouvelles maisons où la population indigento va chercher des secours et parfois des consolations."

M. Husson hopes that the work of which he has now given us two such excellent specimens will excite an emulative feeling in London, Vienna, Berlin, and all other great cities, and will thus lead to the development of a system of hospital statistics from which the medical profession in all countries will be able to derive the utmost practical advantage. The number of patients treated in Parisian hospitals is large; but if to the medical statistics for that city were added those applicable to patients in other countries differing as to climate and other conditions, how immensely would such an extension of the field of observation increase the value of the conclusions arrived at. But is there any present probability of London co-operating in so desirable a work? Looking at the apparently hopeless muddle into which the administrative functions of this metropolis have fallen, we fear M. Husson will get little assistance here, except from the individual labors of such of our hospital superintendents as take an interest in medical statistics.

*Lectures on the Progress of Anatomy and Surgery during the Present Century.* By Sir Wm. Fergusson, Bart., F.R.S., Serjeant-Surgeon to the Queen, &c. pp. 302. London: Churchill and Sons. 1867.

Sir Wm Fergusson, has in this volume collected the lectures delivered by him as Professor of Human Anatomy and Surgery at the College of Surgeons in 1864 and 1865, and published in The Lancet at the same time, the proprietors of this journal having gladly placed the illustrative woodcuts at his service for the purpose of republication.

Sir Wm. Fergusson's immediate predecessor in the professorial chair lectured on "rest"; these lectures, on the contrary, are essentially on "action." Upon the importance of the numerous practical subjects which are here enriched with the ripe experience of our most distinguished surgeon, it is needless to insist; the audiences which these lectures attracted during their delivery were sufficient guarantees of the interest the profession took in them. Like the well-known "Critical Inquiry into the Present State of Surgery" of Samuel Sharp (1750), or the "Parallèle de la Chirurgie Anglaise et Française" of Roux in 1814, this volume will be referred to in after-years as evidence of what was doing in British Surgery in the reign of Victoria; nor will the surgeon of the present day be disappointed in many a useful hint which may serve him well on an emergency.

The first lecture is introductory, and a part of it is devoted to the memories of those giants of the northern metropolis who were the lecturer's predecessors, and in some degree his teachers. Hare-lip and Cleft Palate, Lithotomy and Lithotrity, Excision of the Knee, Operations on the Jaws, and Amputation, form the subjects of the several lectures; and they are all treated in that conservative spirit which has so distinguished the practice and teaching of the lecturer, the guiding principles of which he sums up in the second lecture—"On Conservative Surgery." The concluding lecture is devoted to the subject of "Operations and Practical Surgery," on which questions no one can be more fully entitled to speak than Sir William Fergusson.

It does not fall to the lot of every surgeon to excise the knee or remove the upper jaw; but every surgeon should at least learn to conduct his operations, however trivial, in the spirit here inculcated. We would recommend this lecture especially to the notice of all hospital surgeons and others who intend to follow in their steps, since the "style" of British Surgery would gain infinitely by an attention to some of the rules here laid down.

One distinguishing and noteworthy feature of these lectures is the clearness with which the author's personal experience is stated, and the frankness with which the unsuccessful equally with the successful cases are related. Thus of 162 cases of lithotomy, public and private, 35 are stated to have died; whilst of 109 cases of lithotrity, only 12 died. Of between thirty and forty cases of capital operations on the jaws, only five have been immediately fatal.

When a surgeon turns to consult a surgical work prior to undertaking the treatment of a case, it is this kind of information which he finds so useful, since the personal experiences of one surgeon are infinitely more valuable than second-hand quotations of the views of half a dozen. By practical surgeons these lectures will therefore be especially welcomed; and we strongly recommend to them their perusal.

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*The Diseases of the Ear: their Nature, Diagnosis and Treatment.* By Joseph Toynbee, F.R.S. With a Supplement, by James Hinton, M.R.C.S., Aural Surgeon to Guy's Hospital. pp. 466. London: H. K. Lewis.

This is a reissue of Mr. Toynbee's well-known and standard work, with the addition of an appendix by Mr. Hinton, bringing up the book to the knowledge and progress of the present day.

Polypi, which were considered by Mr. Toynbee to be connected with the meatus, according to Mr. Hinton, as a rule, spring from within the tympanum. That gentleman considers it best to remove these growths with the snare, and combats Mr. Toynbee's rule that polypi should not be interfered with when disease of the brain is threatened from irritation caused by their presence. Lengthy quotations from Mr. Toynbee's paper on Molluscous Tumours, in the Medico-Chirurgical Society's Transactions, supplement his observations on this subject, and supply three fatal and two cured examples of this affection.

Mr. Hinton gives a summary of Politzer's treatment of Eustachian obstruction by blowing forcibly into the upper part of the pharynx during the act of deglutition by the patient, whereby his Eustachian tubes are opened. He does not at all agree with Mr. Toynbee's wholesale condemnation of the Eustachian catheter, but believes that that instrument has its uses in both a diagnostic and curative way. Mr. Hinton speaks highly of Mr. Toynbee's artificial membrana tympani; and agrees with him in believing that in many cases good is done by supporting the ossicula and bringing the membrana in contact with them. The early incision over the mastoid process, recommended by Sir W. Wilde in cases of threatened mischief to the temporal bone, is warmly supported by Mr. Hinton. Little additional light is thrown upon the treatment of the almost hopeless cases of deafness depending upon disease of the nerve of hearing; but Mr. Hinton connects hereditary syphilis with deafness in a manner which has not usually been done.

Great credit is due to Mr. Hinton for the manner in which he has supplemented the labors of his deceased friend. The work in its new form constitutes a most reliable guide to the treatment of aural disease, and is without a rival in the English language.

## OUR LIBRARY TABLE.

*The Nervous System.* By Ludovic Hirschfeld, M.D. of Paris and Warsaw, Professor of Anatomy to the Faculty of Medicine of Warsaw. Edited in English by Alex. Mason Macdougall, F.R.C.S. With artistically colored Lithographic Illustrations, designed by J. B. Léveillé. Part II. J. Churchill and Sons.—The second part of this work does not belie the excellent promise of the first. The impressions of the plates equal the extraordinary beauty of the original work, and the text is well rendered by the editor. An English edition of Hirschfeld's valuable work will prove an important addition to our literature, and to Mr. Macdougall the thanks and support of the profession are due for undertaking the onerous task of editorship. The student is fortunate who is enabled to aid his studies with Léveillé's unrivalled plates. In the present number of this work, the account of the coverings of the brain and spinal cord is completed, and the description of the brain and cord begun.

*Change of Air considered with regard to Atmospheric Pressure and its Electric and Magnetic Concomitants, in the treatment of Consumption and Chronic Disease. With a general Commentary on the most eligible Localities for Invalids.* By J. C. Atkinson, M.D. London: Trübner and Co. 1867.—A work which will repay a perusal, if it be only on account of the author's very evident earnestness. It is an attempt to furnish indications, through the medium of the barometer and thermometer, for the choice of a desirable locality and height above the sea in the residence of invalids of certain classes, especially those affected with phthisis. It is thoughtfully written; and if it does not exhaust the subject, it at least furnishes us with some hints which are not without value.

*An Essay on Dew and several appearances connected with it.* By William Charles Wells. Edited, with Annotations, by L. P. Casella, F. R.A.S. London: Longmans. 1866.—This is a new edition, with some useful notes, of a very celebrated essay. Mr. Well's work used to be well known. It was described by Sir J. F. W. Herschel as "one of the most beautiful specimens we can call to mind of inductive experimental inquiry lying within a moderate compass." It is difficult to add anything which would be valuable to this opinion expressed by so profound a philosopher. We can only note that the book is an admirable exposition of its subject, which is one of interest and importance to the scientific medical reader. Perhaps, however, the great value of the work lies in the example which it sets of the kind of study that should characterise scientific investigations, the caution with which phenomena should be watched ere conclusions are framed upon them, and the truly modest and simple style in which the results are best expressed. The work is a model for the scientific investigator. We know of none which can be perused with equal advantage by anyone who has concluded to study with unbiased zeal, and describe with truth and without prejudice, the phenomena of nature. Mr. Casella, to whom the medical profession is much indebted for his improvements in clinical thermometers and other exact instruments, has well performed his task of editing the publication. The work should find a place in the library of every would-be investigator of natural laws.

*A Practical Treatise on Shock after Surgical, Operations and Injuries, with especial reference to Shock caused by Railway Accidents.* By Edwin Morris, M.D., F.R.C.S. (Exam.), Surgeon to the Spalding Dispensary and Union Infirmary.—This little book contains references to a great many previous authors, but we do not find in it anything which is particularly new or especially interesting. The author, in his preface, urges that "indulgence may fairly be claimed by one who during great mental exertion and fatigue, spares time to record the result of the experience of six-and-twenty years." If it were useful or necessary to record this experience (which, by the way, is in very great part the already published experience of others), no doubt the writer might deprecate criticism. But was it necessary?

*Railways in their Medical Aspects.* By James Ogden Fletcher, M.D., F.R.C.S.; Medical Officer to the Manchester, Sheffield, and Lincolnshire, and Great Northern Railway Companies, &c. London: J. E. Cornish. 1867.—Some very interesting historical and statistical details are contained in this book, and the author has evidently expended on little of time and trouble in collecting his materials. Besides a considerable mass of information which is not strictly professional, the author discourses on the influence of railway travelling upon the health of passengers, and on the special diseases of railway *employès*. In the second and third chapters he considers the causes of railway accidents, their nature, and the results of the injuries; and adds an appendix containing information respecting the issue of 175 cases. A great drawback to the value of the work is the controversial style in which a part of it is written. Dr. Fletcher is evidently very wroth with medical writers and witnesses who express an unfavorable opinion in the case of passengers who have been "smashed up." To read his book is almost to get the idea that a railway accident is rather a cheerful thing, and that, on the whole, the fortunate sufferers are somewhat better than usual after the lapse of a little time. Far be it from us to say that this is not the case; but we think that an *employé* of railway companies, writing on the subject, should have avoided the position of an advocate which Dr. Fletcher has assumed.

*A Handy Book of Meteorology.* By ALEX. BUCHAN, M. A., Secretary of the Scottish Meteorological Society. pp. 204. Blackwood and Sons. —This is a capital and comprehensive Manual of Meteorology, and the medical student especially will find it much to his advantage to familiarise himself with the work.

# Correspondence.

"Audi alteram partem."

## THE NATURE AND THE MODE OF PROPAGATION OF CONSUMPTION.

*To the Editor of* THE LANCET.

SIR,—The statement that tubercle can be inoculated may well be left for experimenters to verify or otherwise by original observation; also the very remarkable paper of Dr. Wm. Budd, in which he propounds a novel theory of tuberculosis, might have been left unanswered until the opinions therein broached had been substantiated by facts. As, however, your journal has so wide a circulation amongst the profession, and the subject seems to be now under discussion, I beg leave to endorse all the opinions so well expressed in your last week's number by Dr. Cotton, at the same time having no doubt that similar views are held by most of the teachers in our schools. It will, therefore, behove a gentleman of Dr. William Budd's reputation to consider well what arguments he can put forth to overthrow the matured opinions of those who have thought long and laboriously on the subject.

I do not propose to offer arguments in favor of the generally received views; but state that the tendencies of medical teaching of late years have been in a direction quite opposite to that to which Dr. Budd's theory would lead. For my own part, every additional year's experience strengthens my conviction that most of the diseases which we have to treat have no claim to be considered as so many entities, or distinct quantities, which can attach themselves to healthy individuals from without, but rather that they are manifestations of some prior constitutional peculiarity.

In a very marked manner do the so-called specific or zymotic diseases differ from these. They are due to a specific poison introduced from without, which, working in the system, produces certain given changes in the body of a definite duration; leaving the patient well, unless he succumb to the process. All persons, as far as we know, are subject to the influence of these poisons.

Now it appears to me that if there be a disease which does not acknowledge a law of this kind, that disease is tuberculosis. I have been long in the habit of pointing out to my class the different temperaments or diatheses in the human subject, and the particular morbid changes of tissue which are likely to be developed in each. Amongst these diatheses, none, I conceive, is more marked than the tuberculous; it forms one of the most striking types of the varieties of social man, and the predisposition to phthisis can be asserted with much certainty, and such knowledge practically acted upon. This diathesis, like all others, may have been slowly brought about by a number of causes, such as climate, mode of life, &c., and these are probably still in operation; but at the same time it is clearly transmitted from generation to generation. So strongly impressed am I with this fact, that I believe it were perfectly impossible to give some persons tubercular phthisis; the negative or non-tuberculous aspect being equally striking. Deprive me of this fact, and I have lost one of my principal landmarks in the recognition of disease.

If tuberculous phthisis be a zymotic disorder, all persons are liable to its attacks; for I do not know of any condition of system which will preclude the effects of scarlatina, small-pox, or syphilis, if the body be exposed to contagion.

But I will not trespass further on your space, for I am only stating what I had always believed to be fixed opinions of the profession, and based, as I conceived, on unquestionable facts. I should not indeed have said so much had I not been repeatedly, during the last few days, asked, both by medical men and students, what I thought of Dr. Budd's letter; as if at the present day we had learned nothing, and it were still an open question whether tuberculosis was a diathetic disease, or a mere accidental affair like small-pox, dependent on risk of contagion. I cannot consider this an open question; certain doctrines have been learned by us, and these again enforced upon others with the conviction strengthened by experience. Dr. Budd will have to combat these with all his well-known ability. If he overthrow them, we must submit; but in the meantime let it be known that the very opposite to his views is at present taught in the schools.

I am, &c.,
SAMUEL WILKS, M.D.

St. Thomas's-street, Southwark, Nov. 2, 1867.

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## THE BICHLORIDE OF METHYLENE.

*To the Editor of* THE LANCET.

SIR,—I employed the new anæsthetic in two cases at the Queen's Hospital this morning, and forward the notes, dictated at the time to one of my dressers (Mr. E. Smith):—

CASE 1.—Edwin A——, aged forty. Fistula in ano. While lying on table, just before proceeding, pulse 96, small. At eleven A.M., our resident physician, Dr. Temple Wright, commenced the administration with two drachms of the bichloride of methylene (Robbins & Co.) on a towel. Three minutes past eleven, pulse 112, fuller; another drachm. Five minutes past, slight muscular rigidity; pulse 120, smaller. Seven minutes past, another drachm. Eight minutes past, apparently insensible, but wakes up on introducing probe; rather violent muscular spasm follows; another drachm. Nine minutes past, spasm more violent; another drachm. In one more minute, ten minutes from first inhalation, I divided the fistula. Insensibility complete; recovery very satisfactory.

CASE 2.—John K——, a very feeble child, aged ten weeks. Double hare-lip. Pulse 96; but counted with difficulty before inhalation. Thirty-two minutes past eleven, one drachm of the bichloride, on a pledget of lint, held near uncovered face with a pair of forceps. Thirty-four minutes past eleven, another drachm. Thirty-five minutes past, apparently insensible, but wakes up on touching with point of scalpel; another drachm given. Immediately afterwards insensibility was complete. The deformity being unusually marked, I dissected off the skin from intermaxillary projection, broke this off, dissected cheek from bone rather freely, pared the edges, and brought them together; another drachm of the agent given during the operation. The anæsthetic effects in both cases fully bear out Dr. Richardson's discovery; the infant's case was in every respect most satisfactory. Probably the adult also would have had no spasm, if I had allowed a few more seconds before introducing the probe.

I am, Sir, yours truly,
SAMPSON GAMGEE.

Birmingham, Oct. 30, 1867.

## A MODIFICATION OF THE CATHETER.

*To the Editor of* THE LANCET.

SIR,—In cases where the catheter has to be passed when the patient is confined to bed, there is always one part of the operation which is apt to be bungled, to the discomfort both of the patient and operator—viz., getting the end of the instrument into a proper vessel for the reception of the urine. To do this, the handle of the catheter has to be depressed, which in some circumstances gives unnecessary pain to the patient. To obviate this, I beg to submit the following simple modification of the ordinary catheter.

From the lower side of the instrument, about three inches from the extremity, a tube is led, having about the same curve as that at the bent end. The catheter now presents the appearance of an elongated letter S, with a projecting piece at the angle of the upper curve. This part is impervious, merely serving the purpose of a handle, which may be made flattened if desired; the curved portion which points downwards is continuous with the tube, and has its orifice closed in the ordinary way with a wire and head. By the direction of this part, the stream can be safely directed into any kind of vessel, without the chance of wetting the patient's bed or the hands of the operator.

Your obedient servant,
THOMAS WARDEN, M.D.

H.M.S. *Psyche*, at Toulon, July 8th, 1867.

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**A FARMER'S WIFE.**—The "Messager du Middi" relates that the wife of a small farmer at Pierrelongue (Drôme) has just been safely delivered of three girls. Fifteen months since she had given birth to twins, having two other children previously, and all girls.

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THE

## PRESENT STATE OF SURGERY IN PARIS.

By SAMPSON GAMGEE, Esq.,

Surgeon to the Queen's Hospital, Birmingham; Foreign Corresponding Member of the Society of Surgery of Paris; late Staff Surgeon of the First Class.

(*Continued from* December No. 1867—p. 770.)

CARBOLIC ACID is reported in a preceding article of this series to have been employed during the last six years by M. Maisonneuve in the form of an *antiputrescent* lotion, and I quoted from the MS. Memoir which the renowned surgeon of the Hôtel Dieu addressed to the French Academy. The question of priority having been raised, it is not immaterial to state that M. Maisonneuve's paper (Des Intoxications Chirurgicales) was before the Academicians on December 10th 1866. The author believes that to counteract the cause of the great majority of surgical deaths, it is essential to check the formation of pus, and to prevent its decomposition; and, amongst other methods for obtaining those ends, he points to astringent and antiseptic dressings, and to pneumatic occlusion. This brief recapitulation has been made for two reasons—1stly, in consequence of the great interest attaching just now to the antiseptic principle in the management of wounds, by carbolic acid especially; 2ndly, in response to Professor Lister's appeal to "the correspondent who has been investigating the surgery of Paris." It may be well to bear in mind that the doctrines and designations of *purulent* and *putrid infection* come to us from French pathologists, notably from Bouillaud and Ribes, Breschet and Cruveilhier, Dance and Maréchal, Castelnau and Ducrest, Teissier and Sédillot, although the impulse was primarily given to their labors by the original researches of John Hunter, followed up as they were by Abernethy and Travers, and elaborately worked out in the "Pathological Inquiry into the Secondary Effects of Inflammation of the Veins," by Mr. James Moncrieff Arnott.[*] So firmly convinced have French surgeons been for many years that the chief cause of surgical mortality in Hospitals is infection of the system through wounds, that they have worked without ceasing to discover counteracting methods of dressing. Hence Bonnet's advocacy of the hot iron to suppurating wounds, and Sédillot's summing-up in favor of the application to suppurating surfaces of aromatic wine and decoction of bark, with or without the addition of sulphuric acid, sulphate of copper, or corrosive sublimate.[†] In 1853 Professor Gerdy[‡] insisted that the treatment of suppuration required, amongst other means, "les détersifs et les désinfectants;" and Regnoli e Ranzi[§] told us, upwards of twenty years ago, that for the treatment of the purulent infection "some surgeons have endeavored to act upon the toxic principle which they believed to have been introduced in the economy. Bonnet aimed at neutralising in the blood the excess of ammonia with acid drinks, or to decompose and neutralise the sulphuretted hydrogen with the chlorides or with salts of lead." Philippe Boyer likewise advised the chlorides to counteract the putridity of the pus circulating with the blood. Researches pursued with the same object led to Chassaignac's invention of the écraseur, and to his *pansement par occlusion*;[*] to Demarquay's elaborate experiments with glycerine; and to Maisonneuve's persevering, though even in his hands not original, experiments with carbolic acid; the practice of dressing amputations, after the suggestion of Jules Guérin, by *pneumatic occlusion*, being the last step in the long series of experiments, in which the ruling idea has been to check the formation of pus and its decomposition.

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[*] Medico-Chirurgical Transactions, vol. xv., pp. 1—131 London, 1829.

[†] De l'Infection Purulente ou Pyoèmie, p. 503. Par le Dr. Sédillot. Paris, 1849.

[‡] Chirurgie Pratique Complète. Paris, 1853, vol. ii., p. 146.

[§] Lezioni di Medicina Operatoria e di Patologia Chirurgica. Firenze, 1846, vol. i., p. 468.

I have no reason to doubt that Professor Lister was the first "to introduce carbolic acid of full strength into all the recesses of the wound in a compound fracture," and his reason for doing so was equally original—to destroy the minute organisms which, with Pasteur, he believes to be the essential feature of a septic atmosphere. The existence of these organisms is still very debatable, and I apprehend that the pure carbolic acid acts, in preventing pyæmia, in virtue of its caustic properties; not very unlike the application of hydrochloric acid and honey, lauded by Burggraeve[†] as a topical preventive of purulent absorption and hospital gangrene. Employed in the dilute form in the putty, for which the distinguished Glasgow professor has given the recipe, the acid probably exerts its beneficial influence by a twofold agency—1stly, by excluding the air, and 2ndly, as an antiseptic. There can be no doubt that most compound fractures can be conducted to a successful issue if they be immediately reduced; if the edges of the wound be nicely adapted and the air excluded, and proper means taken to ensure the perfect coaptation of the fragments by immobilising the joints above and below the lesion, and availing of the antiphlogistic action of gentle, and uniform circular compression. The carbolic-acid putty of Professor Lister ensures closure and rest of the wound, as I do not doubt that he employs efficient means for securing the undisturbed adaptation of the broken bony surfaces. This principle of treating fractures has long been a favorite one with French surgeons, since the days of Belloste,[‡] but to Baron Larrey the elder belongs the merit of establishing on a firm foundation the practice of reducing compound fractures to the condition of simple ones, and treating both alike, closing the wounds in the former, and constructing a retentive and antiseptic case, which was not removed until consolidation was perfect. The apparatus was constructed with compresses, bandages, and straw cushions, soaked in a mixture of camphorated spirit, acetate of lead, and white of egg beat up with water. To show what faith Napoleon's great surgeon had in this principle of treatment, I may cite the case of the veteran Delage,[§] whose arm was crushed at the battle of Moscow. Larrey only consented to amputate at the shoulder-joint on obtaining the old soldier's promise that he would not disturb the dressing. Disarticulation effected, the wound was held together with the compound fracture casing just described; and Delage, obedient to orders, merely sponged the outside of the apparatus from time to time, and kept it covered with a good sheepskin to exclude the air. With the retreating French eagles Delage found his way back to Provence; and not till then did he remove the apparatus which Larrey had applied on the Russian battle-field. The vast wound was perfectly cicatrised. Treading closely in Larrey's steps, Seutin perfected the immovable apparatus, and strenuously advocated the treating of compound fractures by closure of the wound, exclusion of the air, and subsequent non-interference; and surgical literature abounds in records to prove that the same principles have been carried out with a variety of disinfecting and solidifying materials—to wit, benzoin, chalk, clay, Burgundy pitch, and tar.[*]

The large number of disinfectants which have been brought into notice of late years unquestionably merit a more accurate experimental trial at the hands of surgeons than they have yet received; but there is no doubt that of all other plans for preventing decomposition and securing the healing of wounds, none is so effectual as the approximation of cut surfaces and the exclusion of air, reducing, so far as practicable, the wounds inflicted in the general practice of surgery to the conditions of subcutaneous wounds.

The enthusiastic and enlightened devotion of Jules Guérin to the principle of treatment just enunciated has recently resulted in the adoption of a practice in M. Maisonneuve's clinique, to which I have already alluded. The theory of the proceeding appeared so conformable to sound principles, and the result in the two cases in which I had witnessed it in the Hôtel Dieu was so satisfactory that I determined to put the matter to the test of experience. I amputated the left thigh of a woman aged forty-four in the Queen's Hospital on the 2nd inst. She is a weakly subject, especially hysterical, and had been confined to bed the greater part of two years with disease of the knee-joint, for the relief of which all means had been exhausted. I had the assistance of my colleague, Mr. J. St. S. Wilders, and our resident surgeon, Dr. Jolly, in removing the limb, which I did just above the condyles with a large anterior flap, according to the method of Mr. Carden. The vessels tied, and the flap dropped into place, the edges were accurately approximated by strips of adhesive plaster, but I employed no suture; the ligatures were brought out at each angle and secured under strips of plaster. Without any loss of time, a closely fitting vulcanized india-rubber hood was slipped over the stump nearly to the groin, and connected with the closed glass jar, which I exhausted at once with the air-pump. The rubber hood having immediately and most accurately adapted itself to the surface of the stump, a stop-cock on the tube between the jar and the patient was shut off, and the patient was removed to the ward. The operation was performed at half-past ten on the 2nd inst. The first day was passed with decidedly more than average freedom from pain; to use Dr. Jolly's words, she expressed herself throughout the day as feeling comfortable. Our house-pupil, Mr. George England, has kindly transcribed for me the bedside notes of temperature, pulse, respiration, and state of tongue to this time (eleven A.M., Oct. 7th), exactly five days after the operation.

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[*] Many years previously the *pansement par occlusion* had been treated of, though less thoroughly and methodically, by Vidal de Cassis, "Traité de Pathologie Externe et de Médecine Opératoire," Paris, 1851, 5 vols., 8vo.

[†] Le Génie de la Chirurgie. Gand, 1853, p. 421.

[‡] Le Chirurgien d'Hôpital. Paris, 1716, Third Edition, chap. x., p. 340.

[§] Larrey: Rélation Médical de Campagnes et Voyages de 1815 à 1840, p. 268. Paris, 1841.

[*] Bégin in Plaies d'Armes à Feu: Communications faites à l'Académie. 8vo. Paris, 1849. pp. 192–95.

Sir George Ballingall: Outlines of Military Surgery. Fourth Edition. Edinburgh, 1852. p. 358.

Gamgee: On the Advantages of the Starched Apparatus. (Liston Prize Thesis.) London, 1853. And on the relative merits of the different methods of treating fractures of the limbs in Gamgee's "Researches in Pathological Anatomy and Clinical Surgery." London, 1856, p. 134 et seq.

Adams: A Sketch of the Principles and Practice of Subcutaneous Surgery. London, 1857. p. 15 *et seq*.

Oct. 2nd.—Operation.

3rd.—Morning: Temperature, 100°; pulse 108; respiration, 30; tongue moist. Evening: Temperature, 101 4–5°; pulse 120; respiration 34; tongue moist.

4th.—Morning: Temperature, 100°; pulse 104; respiration, 32; tongue moist. Evening: Temperature 100 3–5°; pulse, 120; respiration, 20; tongue furred and moist.

5th.—Morning: Temperature, 99°; pulse 106; respiration, 28; tongue furred and moist. Evening: Temperature, 99 3–5°; pulse, 112; respiration, 24; tongue moist and clean.

6th.—Morning: Temperature, 100 4–5°; pulse, 112; respiration, 24; tongue moist and clean. Evening: Temperature, 101°; pulse 112; respiration, 26; tongue moist and clean.

7th.—Morning: Temperature, 99 2–5°; pulse 104; respiration, 24; tongue moist but furred.

The bowels have acted, and the skin has been nicely moist throughout. The air-pump has been worked on an average every six hours, and each time a small quantity of treacly-looking fluid has passed into the jar, which was emptied at twelve o'clock yesterday. It contained twenty-one ounces of porter-looking fluid, without any clot. The quantity of fluid drawn off decreases steadily, the stump is gradually decreasing in size, and I purpose not looking at it for some days. Meanwhile the patient has enjoyed some roast chicken and bitter beer, and says she is a great deal better.

Deferring to next week the further history of the case, and the reflections to which its close observation has given rise, some difficulty is confessedly experienced in checking expression of the hopes suggested by this method of treating amputations; but, under the circumstances, judgment, and not enthusiasm, must have the reins.

*(To be continued.)*

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## JOHN LAVIES, Esq., F.R.C.S.

On the 26th October, at his house in Besborough-gardens, Pimlico, died Mr. John Lavies, in his sixty-ninth year. He became a member of the College of Surgeons in 1819, and of the Hall in 1820, and shortly afterwards joined Mr. Hanbury in extensive practice in King-street, Westminster. This practice, we believe, was one of the oldest in the city of Westminster, and, if we mistake not, was at one time carried on by Mr. Golding, whose son was the secretary to the great Lord Clive nearly a century ago. Mr. Lavies was in practice for the long period of forty-seven years moving from King-street to Great George-street, and subsequently to the house in which he died. He was in active practice during the whole of this time, and in addition to a large private connexion, he was surgeon to the House of Correction, was one of the parochial surgeons at St. John's and St. Margaret's Westminster. He was also surgeon to some of the leading charities of Westminster, and to the Invalid Artillery in St. James's-park, and to several of the public offices.

Mr. Lavies was held in great respect by his professional brethren, as well as by the public, and he had many claims to their regard and esteem. He was a sound practitioner, and was called in frequently by his neighbors in cases of difficulty. Of a most prepossessing appearance, and of winning manners, he was a favorite with all. But Mr. Lavies had stronger claims to the affectionate regard of his brethren. Throughout life he was a man of progress; he was a medical reformer at a time when that name was almost an opprobrium; but his thorough independence of character, his generous aspirations, and his liberality, in the full sense of that word, enlisted him early in life in a cause which he never forsook, even in its least promising days. It would be unjust here not to mention that Mr. Lavies was a most liberal contributor to the funds of the various reform associations with which he had been connected.

When the British Medical Association was formed, upwards of thirty years ago, under the presidency of Dr. George Webster, of Dulwich, Mr. Lavies soon became a prominent member. He was President of the Medical Registration Association; and, notwithstanding the multiplicity of his engagements, was seldom absent from his post, contributed largely to its funds, and made himself responsible for its debts.

Mr. Lavies belonged to a class of practitioners who were stigmatised as only equal to the "common exigencies of surgery," but he gave that opprobrium the best of all contradictions by his great success in some of the most responsible positions in which a surgeon can be placed. Nor must we forget that, as a member of the Apothecaries' Company, Mr. Lavies on all occasions used his influence to raise the educational status of those who have been characterised as belonging to "the inferior grade," a stigma which has long since been removed by the inexorable logic of facts. To those who knew John Lavies in his private or public relations, it is unnecessary to say that we have not overdrawn his portrait. To those who did not know him so intimately, it is well that the portrait should be placed in its right position, and drawn in its proper colors. The present race of practitioners know little, perhaps, of the difficulties and even dangers to which a reformer forty years since was exposed. It is needless to enlarge on this topic, but we unhesitatingly affirm that few men have served their professional brethren so honestly, so energetically, and so earnestly as did John Lavies. He has gone from us full of years and of honor; and we, who had so good an opportunity of knowing his true worth, hold up his memory to the esteem of his brethren.

It is gratifying to relate that his funeral was attended by many of his professional brethren, by grateful patients, and by representatives of most of the institutions with which he had been so long associated.

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**Buried Alive.**—The "Journal de Morlaix" mentions that a young woman at Bohaste, France, who was supposed to have died from cholera a few days back, was buried on the following afternoon. The sexton, when about to fill in the grave, fancied that he heard a noise in the coffin, and sent for the medical officer, who on removing the lid and examining the body gave it as his opinion that the woman had been alive when buried.

# Foreign Gleanings.

### ITALIAN VIEWS OF BRIGHT'S DISEASE.

Dr. **SEMMOLA**, professor at Naples, maintained six years ago, in a paper sent to the Academy of Medicine of Paris, that the first cause of the presence of albumen in the urine is not a peculiar pathological state of the kidney, but a consequence of imperfect nutrition, by which albumen can no longer perform its functions, and must, as a foreign substance, be eliminated by the kidneys. The author believes that albumen in Bright's disease differs from normal albumen, this being recognised by the opalescence of the blood due to the suspension of albuminous molecules in that fluid. The decrease of urea in the urine of patients laboring under albuminuria is connected with two distinct periods of the complaint. In the first period this decrease corresponds with the appearance of the albumen; in the second period there is urea in the blood. The decrease of urea in the urine is special to Bright's disease, and is not noticed in those cases of albuminuria symptomatic of pregnancy or heart disease. The same holds good as to the decrease of sulphates in the urine. In fact, actual Bright's disease has its exact fac-simile in the artificial albuminuria produced by the suppression of the functions of the skin when the latter is artificially covered with a thick air-proof compound. Bright's disease should therefore be considered, according to the author, as the result of a double series of effects which follow the more or less rapid arrest of the functions of the skin, and not as a primitive anatomical lesion of the kidney.

### PHTHISIS PULMONALIS IN THE PARIS HOSPITALS.

It is often maintained that consumption levies a heavier tribute in England than in other countries; but Paris seems, according to accurate accounts, very severely treated. If we take the Report of the Committee appointed by the Medical Society of the Paris Hospitals for May, we find that in that month 244 patients suffering from phthisis left the hospitals, and 292 died. M. Besnier, the able reporter, says that these figures vary but little month after month. (It might be asked in what state were those who *left* the hospital.) In fact, he observes that, whilst the mortality from all causes was only 146, phthisis alone caused 292 deaths. M. Besnier expresses the wish that the authorities may join with physicians to devise means of disposing of the numerous cases which crowd the wards by sending the patients to milder climates.

### DIAGNOSIS OF FRACTURE OF THE CLAVICLE.

M. Alph. Guérin showed, at one of the late meetings of the Surgical Society of Paris, the clavicle of a man who had been buried under a fall of earth. The patient was carefully examined, but no fracture of that bone could be detected. He was carried off by severe pneumonia; and, on dissecting the clavicular region. the soft parts and the periosteum were found *uninjured;* but, on applying pressure to the under aspect of the clavicle, two fragments were thrust upwards. No such results were obtained when pressure was made from above.

### ANOTHER ATTEMPT IN THE TREATMENT OF CANCER.

M. Chapelle (of Angoulême, France), says that he has considerably relieved his patients by applications of a solution of nitrite of copper. Acetic acid being dethroned, it is but fair that other chemical agents should be tried. By dint of trials, the remedy may perhaps at last be found.

### PROPHYLAXIS OF WHOOPING-COUGH.

M. Davreux (of Liège) uses the following mixture: Extract of aconite, 1 grain; laurel water, 1 fluid drachm; ipecacuanha syrup, 45 drops; solution of gum arabic, 7 ounces: one tea-spoonful every hour for an infant, two for children above three years, and a tablespoonful for adults. The medicine should be given from eight to ten days, although there may be no cough. The remedy succeeds remarkably when the latter is not of long standing. On the subject of whooping-cough, it may be mentioned that M. Poulet has found infusoria in the breath of patients suffering from that complaint. He concludes that whooping-cough should be classed among diseases as infectious as variola, scarlet fever, typhoid fever, &c.

### DEATHS FROM ETHEREAL ANÆSTHESIA.

The medical Society of Lyons have adopted a most useful measure on this subject. Some doubts existing as to the circumstances which attended cases of death after inhalations of ether, a committee was appointed to inquire into the cases. and their report has been inserted in the Lyons medical journal. Due weight has been laid on the peculiarities of patients, on their state of health, on the manner in which the ether was administered, the amount used, and the means employed for resuscitation; so that this report contains facts of the highest importance touching the use of ether as an anæsthetic. One of these facts is, however, clear,—viz., that ether, in spite of the strong opinion expressed by the profession in Lyons lays patients open to some danger, though perhaps the peril is not so great as when chloroform is used.

### THE USE OF GALVANISM IN MEDICINE.

Dr. Manca has just issued the second number of his journal on Electro-Therapeutics. The summary is very tempting; and it would appear that hardly any complaints resist the use of electricity. We have in the list of cures: Rheumatic humero-palmar neuralgia (Manca); complete aphonia (Schivardi), one sitting sufficed; aphonia (Bonnejoy); paralysis of external rectus of the eye (Brunelli); chronic arthritis (Bertrand); ascites and anasarca (Alvarenga); obstinate vomiting (Bricheteau); intestinal obstruction (Keyhel); ileus (Stokes); callous ulcers (Nunn); carcinoma of penis (Bökel); amputation with the galvano-heated wire, &c. Of course experienced practitioners will recollect that *failures* must also be taken into account. The editor has evidently culled from many journals. He would, perhaps, in good faith, have also mentioned the failures, were medical men in the habit of publishing them.

### THE INOCULATION OF TUBERCULAR MATTER.

An important discussion is now being carried on before the Academy of Medicine of Paris. M. Villemin, professor at the Military Medical School, has succeeded, as we have already stated, in causing, in animals, deposits of tubercle in the larger viscera by inoculating grey granular tubercular matter taken from man. The ingenious experimentalist, aided by M. Colin, who has reported on these phenomena, and has himself undertaken experiments, at once started the theory that a tubercular virus existed, which is capable of artificial transmission. The first speech in the discussion raised by the report is from M. Chauffard, a professor at the Faculty, and well known by his vitalistic opinions. (In fact, Dr. Chauffard was formerly, if we do not mistake, professor at Montpellier, the great focus of the doctrines of vitalism.) This speech is remarkable for its lucidity. It should, however, be recollected that the word "speech" is to be taken in a figurative sense, as members of the Academy *read* what may strictly be called *essays* before the learned body. M. Chauffard's essay, then, labors to show that tubercular matter, as well as melnotic tissue, or the pigmentary matter of a healthy choroid, excites the histological activity of the soft parts in which it is inoculated; that proliferation ensues; that the lymphatic system carries from one gland to another the produce of this proliferation; that each gland shares in the work: and that the mechanical deposits in the viscera thus take place without the intervention of a general disease or diathesis. M. Chauffard shows, we think conclusively, by sound arguments, that the following hypothesis of M. Colin, the reporter, is untenable,—namely, that tubercular matter generated in a lymphatic gland of the young may remain dormant for years, and then be driven, by some cause or other, into the blood, and give rise to acute or chronic tuberculosis. It is expected that the best heads of the medical section of the Academy will share in the discussion.

### VITAL STATISTICS IN ITALY.

In 1865 the births, in the whole kingdom of Italy, were 865,387: 446,098 males and 419,289 females—viz., 16 females to 17 males. Legitimate births, 821,521; illegitimate, 43,866. Of the latter, 10,547 were declared, and 33,319 were foundlings. In comparing the proportion of male and female births in Italy with the same proportion in other States, it is found that in the Grand Duchy of Baden, in Spain, Denmark, and Austria this proportion, as to the predominence of males is greater than in Italy; whilst the other States of Europe are in this respect inferior to the same country. The proportion of illegitimate to legitimate births in Italy is, for the three years (1862–1865) as 1 to 18·88; in the Netherlands it is as 1 to 24·61; whilst in the rest of Europe the proportion of natural to legitimate children is higher than in Italy. The number of births, as compared to the population, was, in 186[illegible], 3·88 births in 100 inhabitants; in 1865 this rose to 3·94. In this respect Italy occupies the fourth place among the nineteen principal States of Europe, in which States Russia holds the first, and France the last, rank. This explains the stationary condition of the French population, and the rapid and somewhat threatening increase of the Muscovite races.

### INHUMATION AND INCINERATION.

M. Favrot has just published, at Paris, a very interesting book on this subject, in which he gives the history of the modes of disposing of corpses among ancients and moderns. This history abounds in curious and startling facts, among which the following is rather extraordinary. It would appear that the original inhabitants of Florida used to burn the bodies of medical men only; they carefully collected the ashes, mixed them with water, and drank the latter to keep off disease.

### THE ACTION OF DIGITALIS IN GONORRHŒA.

M. Bérenger-Féraud has published, in the *Bulletin de Thérap.* of the 31st of August last, an excellent paper on this subject. From the cases mentioned, a few trials might be made. Digitalis seems to have acted as an antiphlogistic.

### TETANUS CURED BY LARGE DOSES OF SULPHATE OF QUININE AND OPIUM.

In the *Annales Médic. Psych.* two cases of tetanus are related by Dr. Poma. One refers to a woman who had been operated upon for a cancer of the breast. She was given fifteen grains of sulphate of quinine and six grains of solid opium daily. Seven days afterwards there was no improvement, and, as all feverishness had left her, the quinine was omitted, and fifteen grains of opium per diem were given for one month, when all the tetanic symptoms disappeared. The other case is that of a woman who had met with a small wound of one of her toes. She had the same doses as had been administered in the preceding case, and also recovered.

### VAGINAL SUPPOSITORIES.

It has been proposed, in the *Journ. de Méd. de Bordeaux*, to cast in a mould hollow cones of cocoa butter, to pour into them glycerine in which either tannin or morphine has been dissolved, and to close the cone with a plug of the same butter. The latter dissolves in the vagina as far as the hollow cone is concerned; but the plug, being thicker, resists, and the medicated glycerine remains in contact with the vaginal walls.

### USEFUL WAX MODELS.

M. Guibout, physician to the St. Louis Hospital of Paris, has sent to *L'Union Médicale* a narrative of his journey through Germany. The author states that at Munich he saw, in the Anthropological Museum, two remarkably well-executed life-size wax figures. One represents a finely-grown woman, whose attire is confined to boots, stockings, and garters. Near this stands another woman, who, besides the latter garments, wears a pair of tightly laced stays. In this second figure the abdominal walls are wanting; and this deficiency allows the spectator to see the liver, the stomach, the spleen, and the large and small intestines squeezed, compressed, packed, and displaced from above downwards by the agency of the stays.

### PULLEYS USED TO REMOVE A SEQUESTRUM.

M. Gaillard, of Poitiers, having to remove a large sequestrum through a small aperture in the soft parts, used pulleys to exert continuous traction. By this slow process the soft parts were gradually compressed, and did not bleed. The sequestrum was at last extracted, and the patient did well.

## News Items, Medical Facts, &c.,

**Sudden Death during the Convalescence of Typhoid Fever.**—M. G. Dieulafoy publishes, in the *Gazette des Hôpitaux* of October the 19th, three cases of sudden death as above stated, which followed each other with remarkable rapidity,—one in private practice, the others in hospital. The first relates to a boy of fifteen, who had reached the twentieth day of the fever. Everything had gone on satisfactorily, and the family atttendant, with the consulting men, were just congratulating themselves in the drawing-room on the favorable aspect of the case, when the sister came running in and exclaiming, "Do come quickly; my brother is in a fit." When the bedroom had been reached, the boy was dead. He had been talking very quietly when the medical men had left him, when he suddenly sat up in bed, moved his arms about convulsively, jerked his body fearfully, and whilst the sister had run for assistance, had breathed his last. No autopsy. A week afterwards, at the Saint-Antoine hospital, a man, aged thirty-five, died just as suddenly, also on the twentieth day of typhoid fever. Here a post-mortem examination was made; but, in spite of the greatest care, no tangible explanation of this sudden death could be found. Two months afterwards a young woman of eighteen, at the same hospital, had suffered from a very severe attack of typhoid fever; but she had struggled through it up to the twenty-first day, when she was in a very favorable condition. She then received a visit from her mother, with whom she cheerfully conversed. In the evening she suddenly called the nurse, asked for water, kept her hand to her throat, as if wishing to remove some obstacle to respiration, sat up in bed, made a few long inspirations, became deadly pale, and, before the house-physician could be fetched, sank back in bed, and breathed her last. The post-mortem examination, performed with the greatest minuteness, revealed no cause for this sudden death. Both M. Dieulafoy and the editor of the *Gazette des Hôpitaux* indulge in attempts to explain these sad phenomena; but, of course, these are mere conjectures.

**Canadian Medical Reform.**—The Medical Society of Quebec is endeavoring, now that the Act of Union has passed, to give a certain uniformity to the medical examinations of the universities and colleges of the Canadian Union. A kind of congress is convened, where resolutions, agreed to by the Society, should be discussed. The purport of these is to render the degrees conferred a merely honorary matter, a central board being appointed to examine the candidates who propose to practise in the Canadian dominions. Now this is the very system of which many German physicians, especially Dr. Rudolfs, of Bremen, are complaining. It is well known that the governments of the various German States have deprived universities of their rights, by ignoring their examinations altogether, and making it incumbent upon whomsoever wishes to practice to submit to examinations instituted by the State. Whether the universities, by laxity or other causes deserved the slight, is another question; but the Canadians had better look to it before they wantonly lower the value of their university and college examinations. By this act bad will become worse, if bad really exists. The State, in Germany, is not only tyrannical as to examinations, but the petty restrictions from one tract of land to the other are very vexatious. In fact, the medical profession in Germany may be looked upon as being under a heavy thraldom. Let a medical council, such as we have in this country, watch over and control the universities and corporations, but let not these be lowered to the ground.

**The Sagrera Trial.**—Some years ago, a lady of this name, an inmate of a private asylum in Spain, brought an action against three doctors, and three of her relations, for illegal detention. The Medico-Psychological Society of Paris, of which one of these doctors was a foreign member, appointed, on the proposition of M. Delasiauve, its president, a committee, entrusted with the task of investigating and reporting upon the case. The committee consisted of Messrs. Loiseau, Legrand du Saulle, and Brierre de Boismont. The report, after great labor, went to show that the lady was affected with hysterical insanity, and that the six persons brought into Court were the victims of a judicial error. This report was adopted by the Society, and the consequence was that the prisoners, who were under sentence of transportation for eighteen and twenty years, were set at liberty, and the proprietor of the asylum was made Commander of the Order of Charles the Third. Quite recently, the members of the committee have received from the Queen of Spain the cross of Isabella the Catholic; and M. Brierre de Boismont, who had written the report, was made commander of the same order.

**Medical Men and Insurance Offices in France.** M. Legrand du Saulle is a well-known forensic physician. He has lately published, in the *Gazette des Hôpitaux*, an interesting article on the above subject, in which he contends, against the opinion of some French practitioners, that medical men may answer the series of questions usually asked by insurance companies respecting the health of patients. With us the matter need not be discussed; but the French Statute Book, article 378, lays a heavy fine on the medical practitioner who shall divulge a secret confided to him by his patient. M. du Saulle shows that the law means to punish the intention of inflicting injury on the patient, and that a certificate of the kind here alluded to cannot be looked upon in that light. Those certificates raise, besides, questions of a very delicate nature in the two countries, for some French authors consider that no medical man has a right to receive money for such. In fact, M. Tardieu, a great authority in those matters, thinks that insurance offices ought principally to rely on their own medical examiners, and that these companies ought not to apply at all to the usual medical attendant.

**French Chemists.**—The "Journal des Connaissances Médicales" publishes a curious statistical account concerning French apothecaries and chemists, from which it appears that there are at the present moment 35 chemists' shops in Paris, producing collectively 758,060fr., and on sale for the aggregate sum of 1,168,000 fr. The average receipts of each are 21,657 fr.; and the market value of each 33,371 fr. The total receipts of 126 chemists' shops now on sale in the provinces in 1,591,000 fr.; the upset prices form a total of 2,062,500 fr. The average income of each is therefore 12,626 fr., and the value of each 16,369 fr. There are in France only three chemists who began to exercise their profession in 1807; there are seven of 1808, six of 18 9, three of 1810, nine of 1811, seven of 1812, eight of 1813, and 23 of 1814. The total number now practising in France is 5705.

**M. Guyon** has recently presented to the French Academy of Sciences a paper on the transmissibility of glanders between man and the horse. Some years ago, a captain of artillery at Algiers died of what was ascertained to be a well-characterised case of glanders. The blood and fluid of the dead body were inoculated on two mares, a horse, and a mule, four animals unfit for service. The disorder was reproduced on the horse, the mule, and on one of the two mares. It is stated that, long after, a military physician, who had helped to dissect the captain's body, gradually declined in health. His fatal illness was long, and accompanied by peculiar symptoms. It was not until the nature of the disorder had become quite patent that the unfortunate physician recollected his having pricked himself very slightly while dissecting the captain's body.

**A well-deserved Honor.**—The "International Societies for aid to the Wounded in Time of War" have awarded to Mr. Condy, of Battersea, their medal, in recognition of the importance to military surgery of his discovery of the disinfecting properties of the alkaline permanganates, and the great sanitary value of Condy's fluid, as proved by the experience of the Prussian army surgeons during the late Bohemian war.

**A Great Improvement.**—The French law requires that, within three days of the birth of an infant, the latter must be carried to the town-hall to be registered. This, on the score of danger to the health or life of the children has often been complained of. The mayor of Boulogne sur-Mer has just decided on appointing a medical inspector, who shall register children at the residence of the parents.

**Another Remedy for Phthisis Pulmonalis.**—M. Stahlberg, who practises medicine in the Oural mountains, says that fermented mares' milk (koumiss) is a sovereign remedy in phthisis among the populations of those mountains. He explains these good effects by the decrease of the pulmonary secretion, and an improvement of nutrition.

**Rating of Charitable Institutions.**—One class of our Charitable Institutions is already the subject of very heavy rating—and that is our Union-infirmaries.—*Punch.*

**Dr. Eaton**, a half-brother of the late President Lincoln, dropped dead at Mumfordsville, United States, on the 20th September while mixing medicine for a patient.

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# THE LANCET.

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J. HENRY BENNET, M.D., T. WAKLEY, Jr., M.R.C.S.E. EDITORS.

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## Second Course of Lectures

ON THE

## ANATOMY AND SURGERY OF THE HUMAN FOOT.

*Delivered at the Royal College of Surgeons of England in June*, 1867,

By Henry Hancock, Esq., F.R.C.S.,

Surgeon to Charing-cross Hospital, and
Professor of Surgery in the Royal College of Surgeons.

### LECTURE IV.—(*Continued.*)

When, on the other hand, we are doubtful as to the amount of mischief; when there is the chance of the disease proving so extensive as to necessitate the removal of the entire foot, the proceeding advised by Mr. Teale offers the greatest advantages. He makes a transverse incision across the sole of the foot, commencing about three-quarters of an inch in front of one malleolus, and ending at a similar point in front of the other. A second incision is then made in the median line, beginning over the tendo Achillis on a level with the ankle-joint, and joining the former at right angles in the sole of the foot. The two lateral flaps thus marked out being next dissected up close to the bones, the calcaneum and astragalus are thus freely exposed. By division of their ligamentous and tendinous connexions one or both of these bones may be easily removed; and should it be thought desirable to remove also other bones of the tarsus, they may be readily reached by extending the median incision a little forwards. If, from the extent of the disease, it is found necessary to remove the entire foot, it may be accomplished by uniting the two extremities of the transverse incision by a curved incision across the dorsum of the foot.

In my own case I made a single semilunar flap in the sole of the foot, with the convexity looking forwards, by an incision from one malleolus to the other. I was induced to adopt this, being in doubt as to the extent of the mischief; but for excision of the os calcis solely, for the reasons stated above, I infinitely prefer Mr. Holmes method.

In his first, second, and third cases Mr. Greenhow made incisions from the inner and outer ankles, meeting at the apex of the heel; then others along the side of the foot, and dissected the flaps back, to expose the bone and its connexions. A wedge of integument was removed in the first case, but it was found better to avoid this in the others. In the fourth case an incision was commenced at the apex of the heel, and carried upwards to the inner malleolus, and then downwards and forwards, and the same being repeated on the outer side, two curved flaps were formed.

Mr. Pemberton, on the other hand, in his first case made a horseshoe flap, by incisions along the sides of the foot and round the heel. In this course the knife cut deeply on the bones, and divided the attachment of the tendo Achillis. In his second case he pursued very nearly the same plan as that recommended by Mr. Holmes.

Dr. George Buchanan says the incisions are best made so as to leave the integuments and soft parts suitable for conversation into a proper covering for amputation, if the disease is found more extensive than anticipated; also to avoid the vessels and nerves of the foot. He therefore adopts the following plan:—Enter a strong knife at the external malleolus, carry it perpendicularly down to the outer edge of the foot, and continue it two-thirds across the sole, about an inch and a half in front of the heel. At right angles to this make an incision along the outer edge of the foot to a point a little in front of the calcaneo-cuboidal joint. The two angular flaps are to be dissected up till the external and interior surfaces of the calcaneum are nearly exposed. The posterior flap can now be turned back over the projecting heel, and the tendo Achillis cut. By dividing the middle fasciculus of the external lateral ligament the bone can be twisted so as to expose the calcaneo-cuboidal articulation, which can be opened by the point of the knife, and the whole bone can be forcibly twisted inwards, the point of the knife dividing the interosseous ligaments as they are put upon the stretch. When the disarticulation is completed, the soft parts on the inner side can be separated without any risk of injury to the vessels or nerves.

Lienhard dissected a foot in which he had excised the os calcis three years before. The sole of the foot was much flattened, and the prominence of the heel had disappeared. Beneath the skin there was a mass of very dense tissue, in which the tendo Achillis, the origin of the short flexors of the toes, the adductor pollicis and abductor minimi digiti, lost themselves. The cuboid was displaced slightly backwards, and was united by very strong fibrous bands with the neck of the astragalus. The whole foot was rotated inwards, as in valgus, and the displacement existed principally between the scaphoid and astragalus. The head of the latter was turned almost directly towards the sole of the foot.

This confirms the account given by Wagner, that the examination during life of persons who have recovered after extirpation of short bones shows that the defect has been remedied as far as possible by the approximation of the bones which lie nearest together. The interval which is left seems to be filled up by a ligamentous material, in which, according to Ried, masses of cartilage or bone are sometimes deposited.

Sir W. Fergusson, in a case in which he amputated at the tibio-tarsal joint seven years after he had extirpated the inner half of the os calcis for caries, found the bone partly regenerated, and the place of the lost substance partly occupied by a fibro-cartilaginous material.

Giving insertion to the strong tendo Achillis, exposed also to all the shocks and injuries which may assault the foot, we cannot be surprised that the os calcis is liable to fracture from muscular contraction as well as from other causes.

Mr. Holmes Coote kindly writes me that there is in the museum of St. Bartholomew's Hospital a preparation of fracture of the upper part of the os calcis from muscular contraction, and that he had at the time of writing a similar case under his care, in which the patient, a respectable woman at Woodford, walked a quarter of a mile after the accident to get to the hospital. Here the upper fragment was completely detached.

Mr. Henry Smith saved the foot in a case of compound comminuted fracture from explosion. The os calcis was broken to pieces. As many fragments as possible were removed at the time, and the patient recovered, being able to walk.

A collier, aged fifty-four, was admitted, under the care of Mr. Folker, into the North Staffordshire Infirmary on the 21st October, 1862, with fracture of the os calcis. The accident was caused by a fall of a stone on the heel. The bone was broken through, and drawn up by the tendo Achillis. He had been under treatment elsewhere for about a week. It was found impossible to reduce the fractured portion, so it was removed. The parts healed slowly, but the man was discharged cured on Dec. 15th. Mr. Folker has since heard that he walks very well.

I am indebted for the following case to the kindness of Mr. Wheelhouse, of Leeds:—

Eli Sykes, aged nineteen, confined in Leeds borough gaol, had been sentenced to death on December 9th, 1865, for the wilful murder of Hannah Brooke, at Batley, on August 19th. His demeanor after sentence seemed calm and resigned. He was confined in a cell on a ground floor for the first day; but as another condemned prisoner seemed not so trustworthy, the latter was put into it, and Sykes removed to one on the first gallery. About a quarter before seven on December 23rd, the door of his cell being accidentally unfastened he got out, ran along the first gallery to the staircase and up to the top landing, threw himself over the rails, and fell on the stone floor beneath, a distance of over twenty feet. He appears to have dropped rather than jumped from the rails; to have alighted on his feet, and then fallen forwards, striking his forehead against the ground. When seen by Mr. Price, surgeon to the gaol, both ankles were much swollen; and at the inside of the left was a wound about the size of a shilling, through which loose portions of bone could be felt, and from which there was free arterial hæmorrhage. There was also free oozing from a wound in the sole of the right foot. Both tibia and fibula appeared uninjured. At ten P.M. Mr. Wheelhouse saw him in consultation, and removed large fragments of the os calcis by means of a crucial incision over the left ankle, which disclosed extensive comminution of the os calcis; and there was free arterial bleeding from the bottom of the wound, for which two ligatures were applied. It was found that he had also sustained a fracture of the skull over the frontal sinus. On December 26th his pulse was 140; the wound in the ankle looking well. On the 30th he became delirious, and so violent as to require restraint. On January 3rd secondary hæmorrhage commenced from the left ankle; it was easily arrested at the time, but recurred briskly in the evening, leaving him very weak. He rallied; but on the 6th the hæmorrhage again returned, and, though not profuse, was sufficient to destroy him: he gradually sank, and died five hours afterwards, being conscious to within an hour of his death.

*Autopsy, forty-two hours after death.* Spare frame; ecchymosis of forehead and left elbow and shoulder. In the left foot was a compound comminuted fracture of the os calcis, which was broken into numerous pieces, the astragalus being twisted and drawn down among them. There was considerable infiltration of the tissues, which were sloughy. The plantar arteries had been wounded just after the division of the posterior tibial. The source of bleeding in the central and anterior part of the wound could not be made out as the arteries were lost in the sloughy part of the wound. In the right foot the os calcis was fractured, though not nearly to the same extent as the left, the wound in the sole communicating with the fracture. There was no extravasation of blood, and healthy suppuration was going on.

Whether from its greater size, its greater number of points of ossification, or its similarity to the long bones in possessing an epiphysis, the os calcis would seem to admit of partial excision being performed upon it for disease with much greater prospect of success than any other bone of the tarsus. From the cases recorded, it is evidently more frequently the seat of disease than the rest; and from the nature of the cases recorded, it is an exception to the laws of pathology as enunciated by Wagner in his celebrated treatise "On the Reproduction of Bone." Speaking of resection of the os calcis, he observes: "The power of regeneration of short bones is usually placed far beneath that of the tubular bones; but with respect to the regeneration after resection of the extremities of the long bones, the difference cannot *à priori* be assumed to be very considerable. The articular ends of long bones are hardly distinguishable in anatomical structure from the short bones. Even the periosteum which covers the short bones is wanting in a portion of the others; and the difference can *à priori* be founded only on this consideration; whether in resection of the long or tubular bones the shaft is *more* or *less* involved in the operative procedure. That this *à priori* conclusion is correct is shown by experience. Necrosis most usually attacks the shaft seldom the extremities of the bones.

I would here allude to a class of cases which whilst they throw some doubt upon the correctness of the latter conclusions, are of interest and of no little practical importance, from the great resemblance which they bear to disease of the ankle-joint, and the consequent danger of their being mistaken for that mischief. I allude to the presence of a sequestrum in one or other of the malleoli or their immediate neighborhood. Whether from being more exposed to external injury or not, the external malleolus seems to be the seat of this mischief much more frequently than the internal, and indeed the two extremities of the fibula are liable to its existence. I have had cases of necrosis of the head of the fibula wherein the symptoms so closely resembled disease of the knee-joint as to require a very careful examination to distinguish between the two; whilst in the external ankle, the thickness and swelling of the soft parts around the joint, the pain upon movement of the part, the inability to bring the heel to the ground or to bear the weight of the body upon the foot are all symptoms which assimilate it to more serious condition of disease of the ankle-joint itself. The history of the case, the situation of the wound over or close to the malleolus, and the capability of moving the joint when the patient is under the influence of chloroform, will, however, in most instances enable the surgeon to form a correct opinion of the true nature of the mischief; at all events they do so with sufficient frequency to justify the surgeon in making an exploratory examination before having recourse to more serious measures.

Three years ago I operated upon a man, aged thirty-four, at the Charing-cross Hospital, for this disease. He said that nine months before he had had great pain in the outside of the left ankle-joint; that, being unable to give up his work as a laborer, the pain became more severe, and ultimately an abscess formed, since which time he had been unable to walk. When I first saw him he was complaining of great pain, especially when the part was moved; there was considerable thickening and swelling around the joint, and he was unable to bring the heel to the ground. Directly over the outer malleolus was a small opening, which, examined by a probe, led to dead bone. Having placed the man under chloroform, I found I could move the joint freely, and I therefore made a crucial incision through the skin over the lower end of the fibula, and applied a trephine over the opening in the bone, taking care only to remove the external shell. This done, I exposed a sequestrum, about the size of a small hazel-nut, which having removed, I brought the wound together, and the patient recovered perfect use of his foot, although he was two months in doing so.

In the following very interesting case there was a sequestrum in the lower end of the tibia, in addition to one in the external malleolus:—

R. M——, aged sixteen, was admitted into Charing-cross Hospital, under my care, on April 17th, 1866. He stated that in 1859 a piece of bone was discharged from his sternum. In January, 1866, his left ankle began to swell on its outer side; an abscess formed, which burst, and a large quantity of matter escaped.

On admission, the ankle was much thickened and enlarged: moving the joint gave him great pain. There was opening just above the outer malleolus, leading down to dead bone, the edges of the wound being surrounded by fungous granulations. On May 12th I cut down upon the malleolus, and with a small trephine removed the outer shell bone, including the opening, and, as in the last case, exposed and removed a small round sequestrum. Upon examining the cavity left by the removal of the sequestrum with the end of my little finger, I discovered a second opening on the inner side of the malleolus, and communicating with the lower end of the tibia, and an examination with a probe showed the existence of another sequestrum in this situation. I therefore again applied the trephine through the first opening, and removed the corresponding portions of the inner shell of the malleolus and the outer shell of the tibia, and by this means I was enabled with a pair of long forceps to extract the sequestrum from the tibia, which was about the same shape and size as that removed from the fibula, and without any damage to the ankle-joint. Considerable discharge followed the operation; but this was in a great extent removed by the free employment of the iodine paint, and he was able to move about, and ultimately left the hospital at the end of July.

In some cases, as in the following, for which I am indebted to the kindness of Mr. Wearn, of Longton, in Staffordshire, the interference with the movements of the joint is much less.

"A. B—— injured his ankle-joint about six years ago, but has worked off and on as a collier since then up to six weeks back, when he came under surgical treatment for pain and swelling over the lower end of the fibula. This was poulticed, and in a little time matter formed, which was let out. About nine days ago I was called to see the case, as another surgeon had said 'there was nothing more could be done but to amputate above the join.' Upon examination with my finger and probe I am able to make out that the only bone diseased is the lower part of the fibula. All the other bones appear to be perfectly sound, together with perfect movement of the joint in every direction, and without pain. Large external fungous growths have sprung up, but his general health is good."

As Mr. Wearn paid me the compliment of asking me my opinion upon this case, I suggested that it was in all probability a case of necrosis of the external malleolus, which could be best removed by the application of a trephine.

The late Mr. Hunter, of Margate, also kindly informed me that on the 12th of July, 1864, he removed a sequestrum from the external malleolus of a man, aged twenty-one. The patient was discharged from the hospital cured on the 25th of the following October.

The following is a still more valuable and interesting case:—J. S——, aged twenty-six, a shipwright, was admitted into Exeter General Hospital, under the care of Mr. Kemp, suffering from disease of the ankle-joint of three years' duration. He had been in the hospital two or three times before. Mr. Kemp exposed the outer malleolus, and removed a circular piece of bone with a trephine, and extracted a large piece of dead bone the astragalus without difficulty. The operation was followed by great pain, which lasted for several hours, but it was combated by opium. No bad symptoms followed. The wound healed in seven weeks, and the patient was enabled to walk well.

Grist removed the entire external malleolus for caries limited to the external malleolus; at all events he described it as such, but it is questionable whether he did not mistake the nature of the case, which in all probability was of the same character as those under consideration. The mischief appears to have been entirely restricted to the external malleolus; the motions of the ankle-joint were unimpeded, the ankle-joint itself was unaffected. However, Grist cut through the peronei muscles, removed the malleolus, and filled up the deep cavity with charpie. Violent inflammation succeeded, but the wound is said to have healed in two months, and at the end of three months the patient went to work. He could adduct the foot, but neither abduct nor rotate it. He retained the power of extension and flexion almost to the same extent as before, but this was affected at the medio-tarsal end, not at the tibio-tarsal articulation, which was anchylosed. The patient died three months afterwards of consumption, and Grist has given the following description of the parts:—The tibia was anchylosed to the astragalus; the astragalo-scaphoid capsular ligament was very loose and extensive; the fibula closely approximated to the tibia, and was firmly united to it. There was no regeneration of bone, but the periosteum was continued directly into a ligamentous substance, which formed a sort of blind pouch around the cut end of the fibula, and passed over to the bones of the tarsus.

Mr. Erichsen also, whilst admitting that the os calcis is the most frequently diseased of the tarsal bones, adds that "this is by caries, not necrosis, the latter occurring but rarely." Dr. George Buchanan, on the other hand, says that true caries confined to the os calcis is a rare thing. Circumscribed caries, often round a necrosed bit, admits of removal by gouge, &c.

We have already seen that necrosis of the ends of the long bones is by no means so uncommon as implied by Wagner's observations. It has been met with, and not unfrequently, in the extremities of all long bones; nor is it so unusual in the os calcis. We have seen it in the interesting case recorded by Mr. Cæsar Hawkins; we also find it in the following cases:—

Mr. Wheelhouse, of Leeds, removed a sequestrum from the os calcis in February, 1866, leaving a smooth cavity. The case was progressing favorably when he wrote.

In another case a sequestrum was removed from the left os calcis. The disease had existed for four years. Cause unknown. A piece of dead bone was removed, which was found lying in a smooth granulating cavity.

Mr. Power, in August, 1866, kindly sent me a patient who had applied to him at the Westminster Hospital for a wound on the inner side of the heel. He had been operated upon for necrosis of the os calcis in 1861.

Mr. Liston, in 1844, applied the trephine and removed a sequestrum, the size of a small nutmeg, from the os calcis of a girl aged seventeen, who had suffered for three years and a half. The patient recovered, and left the hospital three months after the operation. Mr. Liston also removed a sequestrum from the inner side of the os calcis by applying the trephine in the case of a girl aged ten years. She recovered completely; as did a woman, aged thirty-two, from whose os calcis Mr. Solly removed a sequestrum in June, 1853.

Mr. Samuel Hey, of Leeds, removed a sequestrum from the os calcis. He was subsequently obliged to amputate the leg, and the patient recovered.

Although, as a general rule, I quite agree with Mr. Holmes in the conviction of the great advantage of complete excision of the tarsal bones over gouging, still many cases are recorded in which success has attended partial resection of the os calcis for caries even when effected by the gouge, especially when the periosteum has been preserved.

W. W——, aged twelve years, was admitted into King's Lynn Hospital, under the care of Mr. Kendall, with caries of the os calcis, from which he had suffered for some months. Constitutional treatment having failed, he, on the 7th of May, 1866, was placed under the influence of chloroform, and on examination it was found that the greater portion of the os calcis was diseased. This was gouged out, the periosteum being left; and the wound was dressed with a solution of chloride of lime, thirty grains to the ounce. The cavity filled up with bone extremely fast, and on the 23rd of June, forty-seven days after the operation, he left the hospital quite well, and is now at work.

W. A——, aged twenty-eight, residing at Swaffham, was admitted into the West Norfolk Hospital, under Mr. Kendall's care, March 17th, 1866, with extensive disease of the os calcis and astragalus. There were several sinuses leading down to and opening into the joint, which had existed for more than a year. As constitutional treatment had failed, Mr. Kendall on the 11th of June gouged away the greater part of the os calcis and the front of the astragalus, leaving the periosteum untouched as far as possible. The wound was dressed with the solution of chloride of lime. The patient did very well, and on the 4th of August he was made an out-patient, but was ordered not to rest any weight upon the limb for the present.

The late Mr. W. James, of Exeter, operated upon T. C——, aged eighteen, on the 26th of April, 1860. The operation consisted in turning back a flap, and gouging out part of the os calcis; then bringing back the flap, which united, and the patient recovered. Mr. James, sen., kindly wrote me, on the 19th February, "I had great pleasure in hearing that in the case of excision of the os calcis operated upon by my late son; the patient is now in India, serving in the English navy."

I am indebted for the following case to the kindness of Mr. C. Williams, of Norwich:—A farm-boy, aged eighteen, about six months before admission into the Norwich Hospital, suffered deep-seated pain in the outer ankle of his left foot. A few weeks later an abscess formed in that situation, and shortly after several more formed around the heel, so that on admission there existed several orifices on either side of the calcaneum, leading to sinuses, through which carious bone could be detected, and a rather profuse discharge of unhealthy pus was issuing therefrom. The ankle-joint seemed free from disease. An incision was made from below one malleolus round the sole of the foot to a similar point on the opposite side, and this was intersected by an incision along the middle of the heel. About three-fourths of the os calcis was then exposed and sawn off. No joint was interfered with. The case progressed most favorably, and he was dismissed cured six weeks after. Mr. Williams had the opportunity of seeing this case almost a year later. The patient had then a capital heel and could walk well.

I have collected the particulars of 42 cases of partial excision of the os calcis, although doubtless many more have been done. Of these, 25 were performed for caries, 1 for necrosis, 12 for necrosis with sequestra, 4 for accidents.

Of the 25 for caries, 14 recovered at periods varying from six weeks to six months; 2 required a second operation, but recovered; 1 suffered secondary amputation; 1 died the day after the operation, of diarrhœa; of 7 the result is not given.

The case of necrosis recovered.

Of the 12 cases of necrosis with sequestra, 3 recovered; 1 required a second operation; 1 suffered secondary amputation; of 7 the result is not given.

Of the 4 cases for accident, 3 recovered—one in seven weeks; 1 died in fifteen days.

## Clinical Lecture

ON SOME POINTS IN

# PUNCTURED FRACTURES OF THE SKULL.

*Delivered at University College Hospital.*

By John Eric Erichsen, Esq.,

**Senior Surgeon to the Hospital, Holme Professor of Clinical Surgery, Etc. Etc.**

*(From shorthand notes by Mr. Gowens.)*

Gentlemen,—I wish to-day to direct your attention to a case of injury of the head, which illustrates in a very interesting manner certain points in that very remarkable surgical injury, Punctured Fracture of the Skull. The case is as follows:—

Cornelius H——, aged forty-seven, admitted Sept. 24th, 1867. States that six weeks ago, in a quarrel, he received a blow on the head from a hammer. He had no treatment for four weeks, and then saw a surgeon, who recommended him to come to the hospital.

On admission, a wound of the scalp was found, situated to the left of the vertex of the head, and discharging unhealthy-looking pus. A fissure could be felt, with the probe or the finger, in the skull below, and the bone was found to be denuded of its periosteum for a little distance round. There was some heat about the head, but no headache; tongue much furred; pulse 64; no affection of the special senses or paralysis present. A dose of calomel, and afterwards some house medicine, were, administered, and he was placed on milk and beef tea diet.

Sept. 25th.—Bowels not open until another dose of calomel had been given. Pulse 60.

27th.—Mr. Heath enlarged the wound with a scalpel. This evening patient is said to have had a kind of fit, in which the limbs were thrown about for four or five minutes. Immediately afterwards the house-surgeon found him quiet but drowsy. He was conscious, and able to answer questions. Pupils equal. Bowels open after castor oil.

29th.—A good deal of heat of head present. Patient complains of pain in forehead and vertex. Answers questions slowly and with some difficulty. Ice to be applied to the head, and two grains of subchloride of mercury to be administered every four hours.

30th.—Patient is improved. Calomel to be diminished to one grain every eight hours.

Oct. 1st.—Complains of headache, most severe at the seat of injury. No marked heat of head; pulse 60, soft and compressible. Catheter passed, and some thick urine drawn off.

2nd.—Pain in head continues. Skin feels hot; tongue moist, covered with a thick white fur. Urine again drawn off. At twelve o'clock the left pupil had dilated considerably more than the right, which was normal. At 1.30 P.M. the left pupil had contracted to the size of the other, but at 2 P.M. it had again dilated. At 2.30, Mr. Erichsen, anæsthesia being obtained by ether spray, enlarged the wound by means of a crucial incision, and found a punctured fracture in the left parietal bone near the vertex of the skull. A circular piece of bone was removed by a large trephine and the elevator. The bone bounding the aperture that had been made was found to be fissured through the inner table, and a little depressed. A second piece of bone was then removed by a smaller trephine. The smaller circle could not be removed entire with the trephine, but was taken away with the elevator. The dura mater looked healthy. The flaps were then secured by sutures, and ice applied to the head.

3rd.—Has passed a good night. Pulse 76; skin cool; only slight pain in the head; no paralysis anywhere; passes urine and fæces with perfect action of the sphincters; left pupil slightly but persistently larger than the right; wound looks well.

4th.—Condition much the same as yesterday. The catheter had to be passed by the house surgeon, and the last drops of urine were opaque and evidently loaded with pus. Wound is beginning to suppurate.

5th.—Head slightly hotter and more painful. Wound suppurating.

6th.—At 1 A.M. the night-nurse noticed that patient's right side was paralysed. After this the urine and fæces were passed involuntarily. At 10 A.M. the power of moving his right arm and leg was much impaired, and sensation in the same limbs much diminished. The right pupil was normal, and the left somewhat dilated. Answered questions with some difficulty. No deviation of the tongue to either side on protrusion.

7th.—Patient is evidently worse. Pulse 80; skin feels hot, but the temperature in the mouth is normal. The paralysis, involuntary passage of urine and fæces, and the slight distension of the left pupil continue as before. The left ala nasi is obviously flatter than right. The man lies in a half stupid state, and but partially understands what is said to him. The wound is suppurating freely and healthily.

8th.—Patient much worse this morning. Pulse 100, notably feebler than yesterday. He lies in a semi-comatose state; face shrunken, eyes starting, pupils dilated, the left a little more than the right. Suppuration from the wound continues pretty free. At 11.30 A.M. he had a convulsive fit, and after this the pulse became much feebler. —8 P.M.: The nurse states that he has had three fits since the morning; condition otherwise unchanged; still able to swallow nutriment.

9th.—Died at 9.40 this morning.

*Autopsy, fifty-two hours after death.*—On removing the calvaria, the surface of that portion of the dura mater which was exposed by the operation was found covered with pus, and the membrane itself to be considerably thickened by inflammatory products. Quite unconnected with this, an inch nearer the occiput, two little collections of purulent matter came into view. The whole membrane was much congested. On examination of the inner surface of the calvaria, it was found that the bony rim of the hole made by the larger trephine was very rough and irregular in about half its extent on the surface of the bone opposed to the dura mater, the hole itself being cleanly cut. The irregularity extended a quarter of an inch from the margin of the hole, and was obviously the result of the original injury. A considerable branch of the middle meningeal artery lay beneath the trephine wound, but there was no effusion of blood beneath the scalp. Beneath the dura mater, over the left hemisphere, a considerable quantity of greenish-yellow pus was found, not connected with any particular spot in the brain-substance. An abscess was found in the posterior lobe of the left hemisphere, about the size of a walnut, and situated externally to the posterior cornu of the lateral ventricle. It had no communication with the other suppurating spots. Nearly the whole surface of the right hemisphere beneath the dura mater was found covered with greenish lymph. Slight opacity of the arachmoid at the base of the brain. The entire brain-substance was softer than it should be, and there was considerable softening in the neighborhood of the abscess. Ventricles healthy.

In the prostate a large abscess was found, occupying the whole of the right lobe of the gland. It was entirely circumscribed, and did not communicate with the urethra. Another smaller abscess, about the size of a small pea, was found to the left of the uvula vesicæ. This communicated with the interior of the bladder by a small opening which was directed away from the urethra. The mucous membrane of the bladder was considerably congested.

To recapitulate the case very briefly before considering some of the special points in connexion with it. You will observe, gentlemen, that the man was struck on the left side of the head with the small end of a hammer; that he went about without presenting any very serious cerebral symptoms for four or five weeks, when he applied to a medical man. Indeed, it was six weeks after the receipt of the injury before he came into the hospital, and then he presented no cerebral symptoms; and it was not until a few days after that that he got some slight symptoms indicative of serious cerebral disturbance—namely, dilatation of one pupil, and some slight paralysis about the bladder. He was trephined seven or eight weeks after the injury, and he died within a week of the operation of trephining, with chronic thickening of the dura mater, with a large collection of pus over the left hemisphere of the brain, with a large portion of lymph over the right hemisphere, and an abscess in the cerebral substance itself. Now, the points to which I wish to direct your attention in connexion with this case are the following. We will proceed from the outside to the inside.

First of all, with regard to the injury in the skull itself, which we have designated a "punctured fracture." Now, what is meant by a "punctured fracture" of the skull is this—a fracture of the cranium occasioned by an instrument of small size, either pointed or wedge-shaped. The punctured fracture of the skull presents one great peculiarity—namely, that in it there is always a smaller opening in the outer table and in the diploe of the skull than there is in inner table. Often the opening in the outer table and in the diploe may be very small, as when it is occasioned by a nail, and yet the inner table may be very widely splintered. At all events, whether the inner table is widely splintered or not, you will find, in these cases of punctured fracture, that there is more mischief in connexion with the inner table than there is in connexion with the outer table. And it is that particular circumstance that constitutes their great peculiarity, not only so far as the fracture of the skull is concerned, but as regards the after-consequences and the treatment.

Now, to what is this difference due in the relative amount of injury to the two tables of the skull? It was generally stated to be due to the greater brittleness of the inner table; that the inner table was more extensively fractured because it was more brittle than the outer table. But this is altogether an error, as I pointed out nearly twenty years ago, in examining a case of a man who died here from the passage of a pistol-bullet through his skull. It depends upon the direction of the fracture, and not upon any difference in brittleness of the tables. The inner table is more widely splintered than the outer table in punctured fracture simply because in all these cases the violence is applied from without in a direction inwards. It extends from without inwards, and the consequence is that, just as the aperture of exit is larger in a bullet-wound than the aperture of entry, so when the point of a nail or the small end of a hammer enters the outer table a small wound is made; but, as it loses a certain portion of its momentum in passing through the outer table and the diploe, it presses upon and pushes before it somewhat the inner table before it breaks it up. In that way it splinters the inner table more widely than it does the outer table.

That this is the real explanation of the greater splintering of the inner than of the outer table in punctured fracture of the skull is evident from this: that if you have a case in which the violence is applied in the opposite direction, from within outwards, you find that the outer table is more extensively splintered than the inner table. Of course you can only get such a condition either experimentally or in a case of gunshot injury. The case to which I referred, in which my attention was first directed to the fact that it was the direction of the fracture and not the different degrees of brittleness of the two tables which determined the splintering, was that of a medical man, who committed suicide after getting into a cab, and telling the cabman to drive him to University College Hospital. On reaching the hospital he was found lying dead at the bottom of the cab. He had put a small pistol into his mouth, and discharged the contents through the roof of the mouth and the base of the brain, the bullet coming out at the vertex. On examination after death we found that there was a small hole in the inner table, and a large starred aperture in the outer table. The force had been applied from within outwards, in a direction exactly opposite to that of the injury in punctured fracture, where the force is applied from without inwards.

At that time I made experiments here in the dead-house by driving nails through the skull in different directions, and in doing that in a tolerably thick skull you will find that according as you drive it through from without inwards or from within outwards, you will get more or less splintering of the inner or the outer table, that table being splintered most widely which is least perforated by the penetrating nail. Latterly, my friend and old pupil, Mr. Teevan, has made a good many interesting experiments upon the same point, and he has rather come to the conclusion that the splintering of the inner table is also due to a great extent to the débris of the outer table carried along with the perforating instrument. This is doubtless the case in bullet wounds, but it can scarcely be the case where a nail perforates, for a pointed nail carries no débris along with it, but only forms a small circular aperture. That the direction of the fracturing force is in reality the chief cause of the greater splintering of the inner table in these cases is evident from the fact that you may have a fracture of the inner table only without any lesion whatever of the outer table from a blow on the head. Of this remarkable surgical fact there is a most illustrative specimen in the museum of Guy's Hospital, and several cases are reported in the "Blue Book" of the surgery of the late war in America.

Now there is another remarkable circumstance connected with these fractures which deserve the most serious consideration of the surgeon. It is this: that in the punctured fracture you get a different train of cerebral symptoms from those which you meet with in most other fractures of the skull, and the cerebral symptoms arise from a different cause. It is a very common thing in punctured fracture, where the inner table is splintered widely, to find that the patient makes no great complaint—beyond, perhaps, suffering from a little headache—for several weeks; and, just as in this particular instance, and just as in other instances to which I could refer you, the patient does not apply to a surgeon or come to the hospital till five or six weeks have elapsed from the time of the occurrence of the injury. Then he begins to suffer more seriously, and is unable to go about; he becomes ill from his cerebral symptoms, and seeks surgical advice. But it is often not till a period of several weeks has passed away that the patient does so. Now why is this the case? For the following reasons:—In punctured fracture the patient does not suffer from compression of the brain. From the first there is no compression of the brain; there is no depressed bone; there is nothing pressing upon the brain as a primary condition. But he suffers from the irritation of the splintered fragments of the inner table: the irregular fracturing and the splintering of the inner table, *that* becomes the source of suffering. That source of suffering is not very intense at first, but gradually becomes more and more serious as the splintered fragments develop inflammatory action in the dura mater on which they are lying. You have a number of splintered fragments—a greater or less number, or at all events a starred fracture in the inner table, with edges as sharp as a bit of earthenware or glass, pressing upon and irritating the dura mater; and it is this irritation—which is slowly developed in the dura mater—which leads to the serious symptoms under which the patient eventually come to labor, for which he eventually seeks advice, and from which he will to a certainty eventually die unless relieved by proper surgical interference.

The danger, then, in these punctured fractures is not the primary one from compression of the brain, or from fracture of the bone; but it is the secondary and remote one of the development of chronic inflammation of the dura mater by the continuous irritation of that membrane by the spiculæ of bone, or by the sharp edges of the splintered inner table.

The treatment of these cases should always be directed to this particular point. What that treatment is will be obvious. It is to remove those splinters which are a source of irritation. If you can do that before too much inflammation has been developed within the cranium, you may save the patient. If you delay the operation for too long a time till inflammatory action has been developed, and especially till the products of inflammation have been developed to an inordinate extént within the cranium, you can hardly expect that it will be followed by any material good.

The operation consists of applying a trephine with a very large crown, so as to saw out the whole of the punctured fracture. Apply the crown, taking the aperture in the external table as the central point, saw out a circle of bone, and táke away any splintered fragments that may lie upon the dura mater, or may lie between the cranium and the dura mater. Remove in this way very thoroughly and effectually the whole of the fracture and the splinters lying underneath the puncture in the external table.

Now the sooner that is done the better. It is no use to wait for symptoms of irritation in these cases, because symptoms of irritation are sure to develop themselves eventually. They may not do so quickly; many weeks may elapse. I have known cases in which a longer time even than this has elapsed—as many as ninety days—before cerebral symptoms have developed themselves. But yet eventually the cerebral symptoms will develop themselves, and will prove fatal unless the splinters of bone are removed by the trephine. I believe there is no class of cases in which trephining is more likely to be followed by beneficial results than in these cases of punctured fracture, if the trephine is applied in the early stage. If you wait before you apply the trephine, what do you get? Why the condition of things that was met with in this particular instance. The man did not come to the hospital till six weeks after the injury. By that time encephalitis had begun to develop itself. No doubt lymph, and very likely pus, had already begun to form within the cranium; and when we trephined he eventually died, not in consequence of the trephine operation, because the operation had nothing whatever to do with his death. It gave him some relief for the time; it was his only chance of life. But he died eventually from suppuration within the cranium to a very considerable, I may say to an inordinate, extent.

Now that leads me to direct your attention to the particular point in this case, that there was very extensive suppuration within the cranium. What did we find on the post-mortem examination? Why there was an abscess between the dura mater and the skull, some little distance from the point at which the trephine had been applied. There was an extensive abscess, containing a quantity of yellow pus; over the left cerebral hemisphere, in the cavity of the arachnoid; there was an abscess, the size of a walnut, in the substance of the brain, and the dura mater itself was thickened by inflammatory products. All this mischief in the dura mater, under the dura mater, and in the substance of the brain, was undoubtedly due to the continued irritation of the sharp edge of the punctured fracture upon the dura mater. The constant friction of this sharp edge of the puncture developed inflammation in it; inflammation went on slowly to the formation of pus, and you eventually got these large abscesses under the dura mater and in the substance of the brain, and a quantity of lymph poured out upon the opposite hemisphere.

But you will observe that, notwithstanding all this, the man presented very few signs of such an amazing amount of mischief. Now what are given usually as the signs of intra-cranial suppuration? The signs of intra-cranial suppuration usually given are these: that when pus forms within the cranium, if there is a wound in the scalp, it becomes dry, and ceases to secrete; that if the cranium is exposed, it will be found to be dry and yellow, to be dead-looking; that the patient is hot, with rigors, and that after these rigors the inflammatory symptoms not only continue, but that symptoms of coma gradually supervene. These are what may be termed the classical signs of intra-cranial suppuration. But in this case the greater number, if not all, of those signs were absent. The wound continued to secrete up to the time of the operation, and after the operation. The bone, although bare to the probe, was not deprived of its periosteum, was not dry and yellow and dead-looking when it was exposed for the trephine. The man had had no rigors, and he had had no coma. The only sign of compression that he had had was a dilitation of one pupil, and an inability to pass his urine; that was the extent of the symptoms of compression that this man had. There was an exceedingly slight train of symptoms, yet dependent upon, and connected with, an amazing amount of intra-cranial mischief.

How do we explain this? Well, in the first place, so far as the condition of the wound in the scalp was concerned, and so far as the condition of the skull itself was concerned, I could easily understand that. You only get a cessation of the secretion from the wound in the scalp, you only get separation of the periosteum of the skull, and you only get a dry and yellow and dead condition of the skull, in those cases in which the pus has formed between the dura mater and the cranium. You never get that condition when the pus has formed in the substance of the brain, or even in the cavity of the arachnoid; but you only get it when the pus has formed between the dura mater and the bone. The reason of that condition under those circumstances is obvious. The wound in the scalp ceases to secrete, the periosteum detaches from the skull, and the bone becomes dry, yellow, and dead-looking, because it has lost its vitality; it is in a state of incipient necrosis; and abscess forms between it and the dura mater, which is separated in that way from the skull, and hence it is that you get that dead look, that separation of the periosteum, and that cessation of the secretion in the parts lying near, in the scalp itself. When you have the abscess formed more deeply, necrosis of the cranium has not led to it, and you get none of those symptoms either in the scalp or in the skull. You may have a large intra-cranial abscess, provided it is under the dura mater, without any sign in the scalp or in the skull that would lead you to the suspicion of the formation of pus within the cranium.

The comparative absence of constitutional symptoms in this case is a very interesting matter. It shows how obscure the most extensive cerebral disease may be so far as ordinary physical signs are concerned. The only symptom of compression, if one may take it so, that this man had more or less persistently after his admission into the hospital was slow pulse; though he was feverish and had hot skin, his pulse was very little above 60, and that may be looked upon as a sign to a certain extent of compression of the brain. In these cases of compression of the brain you do not find that the pulse rises, but that it keeps low. In this man it was not until after the application of the trephine and the liberation of the compression that the pulse rose. But he had no rigors, and he had no paralytic symptoms, notwithstanding this accumulation of pus within the cranium. This circumstance shows to what a great extent inflammatory products may accumulate within the cranium without serious symptoms of compression developing themselves, and that it is necessary in these cases of punctured fracture not to wait for the development of serious symptoms, but to act early and energetically by trephining, in order to prevent the occurrence of the serious symptoms. You trephine in these cases as a preventive measure in order to remove a source of irritation, and you do not trephine in these cases as a curative measure in order to relieve the compression that is exercised within the cranium.

So much, gentlemen, for this case, which, as I have pointed out to you, is interesting under several aspects—as to the nature of the fracture, as to the production of the fracture, as to the course of treatment to be pursued, and especially as to the development of inflammatory products within the cranium of the most deleterious character—because, after all, pus and lymph are inflammatory products of a worse form within the cranium than serum would be—without any corresponding amount of, not comatose, but not even paralytic symptoms; only the very slightest symptoms indicating that there was progressive pressure going on upon the brain.

# Clinical Lecture

ON

# PULMONARY EMPHYSEMA.

By E. Headlam Greenhow, M.D.,

Fellow of the Royal College of Physicians, Assistant-Physician to the Middlesex Hospital, etc.

Gentlemen,—You will remember that several of the patients to whose cases I referred in my recent lectures on Chronic and Gouty Bronchitis, were also the subjects of pulmonary emphysema, or dilatation of the vesicular portion of the lungs —a condition often found to exist in connexion with chronic bronchitis, and to which it may stand in very various relations. It undoubtedly sometimes happens that emphysema precedes bronchitis, and has made considerable progress before the accession of the latter disease; but the presence of emphysema so strongly predisposes to the occurrence of bronchitis that, sooner or later, the two diseases become associated. Again, frequently arising, as we shall see, from a common constitutional cause, they sometimes run on together without its being possible to show that either had preceded or caused the other. Lastly, emphysema appears in other, and by no means rare, cases to be a direct result of bronchitis. A lecture on Pulmonary Emphysema, therefore, forms an appropriate sequel to those I have given on Bronchitis, and will, I hope, profitably engage your attention on the present occasion.

I have said that the pathological condition called pulmonary emphysema consists in a dilatation of the vesicular portion of the lungs; and this is, in fact, as nearly as I can describe it in a few words, the true character of the disease, and that which distinguishes it from interlobular emphysema—a condition resulting from the extravasation of air into the interlobular tissue, and due in a large proportion of cases to sudden mechanical rupture of some of the air-vesicles. In pulmonary emphysema, on the contrary, the air is contained within the enlarged vesicles, and hence emphysematous portions of lung are usually of more than normal size. If the emphysema be general or extensive, the whole volume of the lungs is increased; and as this increase in size is due to enlarged capacity for holding air, and not to hypertrophy of the proper lung-tissue, it is obvious that in such cases the amount of air contained within the lungs must be materially greater than in the normal condition. From these circumstances arise the physical signs of emphysema—namely, partial bulging, or, if the emphysema be extensive, more general enlargement of the thorax, with increased clearness of percussion resonance over the emphysematous portions of lung. If the emphysema be very partial, it is usually secondary both in origin and in importance to some other pulmonary lesion; if, on the other hand, it be general or extensive, it is sometimes, I am convinced, a primary disease, and is always, at the least, a very important complication of other diseases, giving rise in the course of time to very obvious symptoms, and to very serious secondary consequences.

Much ingenuity has been expended upon attempts to explain the mechanical causes of pulmonary, or, as it is frequently termed, vesicular emphysema. The distending force which operates is universally recognised to be air; but very different opinions have been entertained as to the process by which it operates—that is to say, whether it effects the distension during the act of inspiration or that of expiration. It has also been a subject of debate whether emphysema is produced in pulmonary tissue which was previously altogether healthy, or whether it be not usually preceded by some abnormal condition of the emphysematous portions of lungs. It may be well, before explaining my own views, that I should give you a brief summary of the principal opinions which have been enunciated on these points.

First, then, as to the mechanism of emphysema —namely, whether it be produced during the act of inspiration or that of expiration. Laennec, the illustrious founder of the science of auscultation, who first accurately described pulmonary emphysema, having observed that it supervened almost always to severe dry catarrh, imagined that the explanation of its mechanism was to be found in the obstructed condition of the bronchial tubes incident to that complaint, arising either from the tumid state of the bronchial membrane, or from the accumulation of pearly sputa in the tubes. Believing the force of inspiration to be much greater than that of expiration, he supposed that the air, which during inspiration had been able to overcome the resistance opposed to its entrance, was unable to force the same obstacles during expiration, and therefore remained imprisoned in the air-cells, distending them more and more as fresh supplies of air were introduced by succeeding inspirations, until at length the cell-walls yielded to the pressure and became permanently dilated. Such was the earliest view of the mechanism of emphysema. But it has been conclusively objected to it by Louis, that whilst bronchial obstruction is usually greatest in the posterior and lower parts of the lungs, emphysema, on the contrary, attains its maximum in the anterior and upper parts. At the same time, one cannot read Laennec's chapter on emphysema of the lungs without admiration of the accuracy of the clinical observation on which it is founded; for the condition which he denominates dry catarrh is precisely that which is found in many cases associated with emphysema, especially emphysema arising from constitutional causes. Several more or less divergent theories have since been proposed to account for the production of emphysema during inspiration, the most complete and recent of which has been propounded by Professor Gairdner of Glasgow. After stating his opinion that the act of expiration is mechanically incapable of producing distension of the lung or of any part of it, Dr. Gairdner enunciates as his own view that emphysema is a complementary lesion, dependent upon the previous occlusion of some of the air-vesicles, and invading the remaining sound portions of lung; but requiring for its development a further condition—namely, that of partially diminished bulk, in other words collapse or atrophy, of some portion of the lung. According to this view, emphysema is produced by the inordinate action of the expanding force of inspiration upon the free air-cells of healthy portions of lung, which obtain the space necessary for their abnormal dilatation by means of the collapse of other portions of the same lung, and which receive the air that cannot enter the occluded parts. Dr. Gairdner's theory, according to my experience, can hold good only in a very limited number of cases of partial and acute emphysema following upon certain acute pulmonary diseases, and is by no means applicable to chronic or general emphysema.

The opposite theory of the mechanism of emphysema, which ascribes its production to the act of expiration, is of comparatively modern date. A certain degree of influence on the development of emphysema had, indeed, long been attributed to the act of coughing; but the first definite assertion that lungs become emphysematous, not during inspiration, but from the effects of expiratory pressure, seems to have been made in a work on the "Mechanism of Respiration and Circulation" by Mendelsohn, a German physician, who adduced in support of his opinion the circumstance that the uppermost parts of the lungs, which are confessedly the favorite seats of emphysema, are precisely those parts which are least distended during inspiration, and which can offer least resistance to the pressure of expiration. By far the most able exponent of the expiratory theory, however, is Dr. Jenner, who joins issue with Dr. Gairdner upon his assertion that the expiratory act is incapable of producing distension of any part of the lung, on account of the uniform pressure exerted during expiration by the external parietes of the thorax over the whole pulmonary surface. Dr. Jenner declares, on the contrary, his conviction that powerful expiration is by far the most common and efficient cause of vesicular emphysema, and demonstrates in, I think an unanswerable manner the inequality of pressure which must be exerted during violent expiration upon different parts of the pulmonary surface, in consequence of parts of the thoracic walls being more yielding than others, and parts of the lungs being less firmly supported than others by neighboring organs. He cites the undeniable fact that, whilst the powerful expiratory effort of coughing is tending to empty the lungs generally, the air is actually driven into the apices of the lungs with such force as to distend them to the utmost, and even sometimes to produce supra-clavicular bulging, which percussion proves to be pulmonary. And what is seen to be true of the apices of the lungs, Dr. Jenner adds, must be more or less true of all the comparatively unsupported parts which are not seen—the anterior margin, the margin of the base and others, which are all at the same time chosen seats of emphysema. I entertain no doubt whatever that as regards the majority of cases, this theory of the mechanism of emphysema is correct, and that it is especially applicable to that large class of cases in which emphysema appears to be the direct result of bronchitis. I am, however, of opinion that emphysema may take place independently of the act of coughing, or of any violent expiratory efforts; and that in certain constitutional conditions the walls of the air-vesicles, being greatly deficient in tone and elasticity, gradually yield to the pressure brought to bear on them during the more or less forced respiration incidental to many ordinary occasions of daily life. Indeed, I am satisfied that any theory of the origin of chronic and extensive emphysema which would refer it exclusively or mainly to mere mechanical causes is founded upon too narrow a view of the subject.

This brings me to the second and, from my point of view, the more important question—namely, whether mechanical causes of distension usually produce emphysema in pulmonary tissue which was previously healthy, or whether its development be not usually preceded by some abnormal condition of the walls of the air-cells which become emphysematous. This question applies chiefly to those cases in which the lungs become gradually and extensively emphysematous; for, as I stated in referring to Dr. Gairdner's theory, partial and acute emphysema does occasionally take place in the healthy parts of otherwise diseased lungs. Laennec, as we have seen, appears to have regarded emphysema as the result of mechanical process, taking place in those parts of lungs which had previously been the seats of extensive dry catarrh; but, nevertheless, his accurate clinical observation compelled him to recognise that, in certain cases, the dilatation of the cells appeared to be the primary affection, and the catarrh consecutive. Dr. Gairdner emphatically states as his opinion that the source of emphysema is to be sought exclusively in a derangement of the mechanism of respiration, and not in any previously morbid condition of the affected part. On the other hand, Dr. Waters, the author of a recent and valuable monograph on Emphysema of the Lungs, entertains no doubt that the disease, in its severer forms, is of a constitutional nature; and that one of its most important features, and perhaps the primary step in it, is a mal-nutrition of the pulmonary tissue, causing its degeneration. My own opinion is even stronger on this point; for I regard degeneration of the tissue of the lungs as being undoubtedly, in the majority of cases, the primary step towards the development of general emphysema.

The best evidence as to the constitutional nature of emphysema is to be obtained by inquiry into the family and personal history of the patients in well-marked cases of the disease. Dr. Jackson, of America, nearly forty years ago, endeavored to show the ordinarily hereditary character of emphysema, and, in order to arrive at trustworthy conclusions, he carefully investigated the family history of 78 patients, on whose statements he could rely. Of this number, 28 were suffering from pulmonary emphysema, and the remaining 50 from other diseases. He found that in 18 out of the 28 cases of emphysema, one or other of the parents of the patient had also suffered from the same disease, and in several instances brothers or sisters had likewise been affected. On the other hand, out of the 50 patients who were suffering from other diseases, only 3 had near relatives who were the subjects of emphysema. From these facts he concluded that emphysema was a hereditary disease. To this conclusion it might perhaps be objected, with some show of reason, that as emphysema is confessedly often the result of bronchitis, and bronchitis has been clearly shown, by means of a large analysis of cases which I have already laid before you, to be often a hereditary disease, therefore it might well be that bronchitis, and not emphysema, was the hereditary ailment in the cases analysed by Dr. Jackson. This argument would acquire force if it could be shown that emphysema only occurs as a result of bronchitis; but this, as we shall see, is certainly not the case. Moreover, I have noticed that emphysema, without any other obvious form of pulmonary ailment is most apt to occur in persons some of whose immediate relatives have already suffered from the same disease, and who may therefore be supposed to have acquired the tendency to it by inheritance. One or more of such cases I shall presently read to you; but in the meantime I shall first place before you the general results of my own inquiries into the question of the constitutional origin of emphysema, founded upon personal investigation into a considerable number of cases, with which some of you are already well acquainted from your attendance in the out-patient room. Emphysema being one of the forms of degenerative disease incidental to old age, and its character being then somewhat different from that of the emphysema which occurs in middle life, I have excluded all senile cases from my investigation. With this exception, I have taken into account every case of general emphysema which has come under my care during the last two years, of which I could obtain any trustworthy history. I find that the total number of cases thus collected is 42, and in no less than 23 of these there appears to have been a hereditary tendency to the disease. In 12 of the 23 cases, one or both parents were said to have been asthmatic, the term usually applied by hospital patients to the dyspnœa of emphysema. In the remaining 11 cases the disease was not restricted to parents, but was said to have existed in some other, sometimes in several other members of the family. In one other case, a brother and sister only of the patient had suffered from emphysema, both parents and the rest of the family being healthy; but even this last case certainly points to some common constitutional condition, predisposing members of the same family to suffer from this disease. With such facts before us, I do not see how we can avoid coming to the conclusion that the liability to suffer from emphysema is hereditary; and when I add that 12 of these patients and many of their relatives suffered also from some form of gout, and that 5 had at some previous period suffered from rheumatic fever, you will understand another ground for the opinion I have given, that general pulmonary emphysema is often primarily dependent upon constitutional diathesis.

Although many authorities have presumed the existence of some change in the pulmonary tissue, diminishing the tone and elasticity of the lungs, and thus predisposing them to the development of emphysema, very few suppositions have been hazarded as to the precise nature of that change. Mr. Rainey, indeed, found in a case of emphysema extensive fatty degeneration of the walls of the air-vesicles, weakening, and in some places wholly destroying, their texture; and this fatty change he therefore conceived to be the origin of pulmonary emphysema. Dr. Jenner, again, states that the anatomical change in the lung which he has most frequently observed to result in the loss of its elasticity and contractility, is fibrous degeneration, the consequence of an exudation of lymph from capillaries which have long been the seats of slight congestion in persons of tolerably healthy constitution. Dr. Waters, on the other hand, agrees neither with Mr. Rainey, nor with Dr. Jenner. He states that, having carefully examined a large number of specimens of lungs which were the seat of emphysema, he found, in the great majority of cases, no indication whatever of fatty matter, and he, therefore, cannot concur in the view of the dependence of emphysema upon fatty degeneration. Dr. Jenner's view, he, as I think rightly, considers cannot apply at least to cases of primary emphysema in which the degenerative process is the first step, and any congestion which may occur is but a secondary consequence; but what may be the exact nature of this degeneration, Dr. Waters adds, his own investigations do not enable him to state. Neither is any more distinct light thrown upon it by the foreign, chiefly German, authorities, who hold the same views as Dr. Waters with regard to the constitutional origin of general emphysema. This, therefore, is the present state of our knowledge on the subject. My own experience has convinced me that fatty change is, undoubtedly, one of the forms of degeneration met with in emphysematous lungs, and that it is, in fact, more frequently found in connexion with general emphysema than fibrous degeneration; but it must not be forgotten that even this view presupposes some defect of nutrition, fatty degeneration being a process which does not take place in perfectly healthy tissues.

I think there can be no doubt that the specific nature of the primary change in the tissue of the air-vesicles, which renders them prone to dilatation, must vary in different classes of cases. There is, for instance, a senile change of atrophic character associated with emphysema in the aged, in which the lungs become shrunken, rather than over-voluminous. Again: though I believe much less frequently than is often supposed, repeated attacks of bronchitis do occasionally induce the development of extensive emphysema in persons not predisposed to it by any special diathesis. I thus clinically recognise three distinct forms of general emphysema: Constitutional or Substantive emphysema; Bronchitic emphysema; and Senile emphysema, which latter I do not at present intend to discuss. Of these, the first and most important form is that to which I specially desire to direct your attention to-day.

Constitutional or substantive emphysema is usually slow of development, and not unfrequently so imperceptible in its advance that it is altogether overlooked until the accession of bronchitis or of some other pulmonary complaint forces it into notice. In such cases the patient gradually passes from a condition of apparent health into a state of well-marked emphysema, without the pre-existence of any obvious apparent pulmonary disease or of any extraordinary mechanical cause to account for its development. The dyspnœa attendant on emphysema creeps on by slow degrees, during months, or it may be years. At first, perhaps, it is only experienced in climbing a hill or some similar unwonted exertion; and the patient becomes so inured to its presence that he accommodates his habits of life to its encroachments, and regards it as his normal condition, until its symptoms are suddenly aggravated by the accession of some adventitious cause such as I have supposed. A good illustration of this form of emphysema is at present under my care as an out-patient, in whose case the disease is hereditary.

A. S——, aged twenty-five, a married man, by occupation a blacksmith, was admitted on the

14th of June. Like many men of his trade, he had been a free liver—that is to say, he had not been intemperate in the sense of getting intoxicated, but he was a soaker, drinking beer regularly in large quantities. Although a blacksmith, he had not been accustomed to heavy labor, his work having been always of the lighter description. His parents were both alive, as well as five brothers and sisters; but his mother had long suffered from chronic bronchitis and emphysema. About last Christmas he had begun to experience uneasiness and a feeling of tightness and oppression in the thorax, with occasional pain in the mammary region and below the shoulders, but without any cough or expectoration. These symptoms continued and increased up to the time of his coming under my observation; and he then suffered also from occasional pain in the epigastrium, and from palpitation of the heart on making any exertion. On exposing the chest, I found it very prominent and rounded in front, flattened at the sides, and abnormally deep in its antero-posterior diameter. The sterno-cleido mastoid muscles were large and prominent, and were engaged even in ordinary respiration; and, on the patient's being desired to take a deep breath, the scalene muscles likewise were brought into action, though in a less marked degree than in many of the cases to which I have from time to time directed your notice. The heart was seen beating in the epigastrium; its impulse was also feebly felt below the seventh rib, but could neither be seen nor felt in the normal situation. On percussion, the thorax was abnormally resonant from apex to base on both sides; even the normal dulness of the cardiac region being almost entirely masked by clear pulmonary resonance. The sound elicited by percussion over the back of the thorax was also everywhere resonant, though less strikingly so than in front; and there was no bulging of the posterior walls, but neither was there any depression. Viewed from behind, our patient had the appearance of a strong, well-made man; but, anteriorly, there was manifest bulging of the thorax from below both clavicles to the base. The breath-sounds were feeble, but in no other respect abnormal. The heart-sounds were free from murmur; the pulse 72, and somewhat feeble; the urine normal. The man had the aspect of fair health, and his only subject of complaint was the constant uneasiness and sense of distension and oppression in the chest. At the time of his coming under my care he had no cough, and stated that he had had none; but a few weeks later, in consequence, as he supposed, of taking cold, he began to cough, and raised a scanty frothy expectoration, which was occasionally streaked with florid blood.

This, I may tell you by the way, is not uncommon in pulmonary emphysema. We rarely in this disease have hæmoptysis to any considerable amount, but in many—perhaps in most—advanced cases, the sputum now and then presents streaks or specks of blood. Emphysema is usually a progressive disease, tending, moreover, to be aggravated by every cause of forcible pulmonary distension, such as coughing, or climbing, or lifting heavy weights. The distension of the air-vesicles, and the consequent stretching of their walls, as of course attended by stretching of the intercellular plexuses, so that the interspaces between the bloodvessels become larger, and the vessels themselves elongated, until at length some of them are ruptured. This is particularly likely to happen in the paroxysmal fits of coughing common in emphysematous bronchitis; and hence it is mostly during the intercurrent attacks of bronchitis to which emphysematous patients are liable, that the slight hæmoptysis which I have described is found to occur.

To return, however, to the case before us. Our patient, after five months' treatment, is about to be discharged as convalescent. The bronchitic symptoms have disappeared, and the uneasy sensations for which he sought relief have either been mitigated, or he has become inured to them, as such patients usually do more or less, in the course of time. Meanwhile, the physical signs remain as before, neither increased nor decreased since the accession of the bronchitis. The thorax is still abnormally resonant, and the heart is still displaced downwards and inwards by the encroachment of the over-voluminous lungs.

Here, then, is a case of unequivocal pulmonary emphysema, which was neither preceded nor accompanied by any other pulmonary lesion which could be regarded as its cause. The attack of bronchitis which occurred whilst the patient was under observation supervened after the emphysema had been diagnosed, and the history of the case clearly points to the development of the emphysema in a great degree between Christmas and June, during which period the patient had undoubtedly been free from all other pulmonary disease. Moreover, if we may trust the patient's own report, he had never at any former time suffered from cough, and at least we may rest assured that he had never suffered severely enough to be laid up by it. I do not see how in such a case, with evidence, also, of a hereditary tendency to the disease, we can avoid the conclusion that its real cause is to be sought in some constitutional vice.

*(To be concluded.)*

# Clinical Lecture

ON A CASE OF

# PENETRATING WOUND OF THE RIGHT LUNG, WITH EXTENSIVE EMPHYSEMA.

By John Adams, F.R.C.S.,

Surgeon to London Hospital.

Gentlemen,—The simple history of this case is this: A man who was painting the outside of a house in Ratcliffe, fell, and was impaled by two iron spikes beneath, and was immediately brought to the hospital. Examination proved that two spikes of the iron railing had wounded him: that one had entered the chest on the right side between the ninth and tenths ribs, and that the other had penetrated for some depth close to the spine, opposite about the seventh dorsal vertebra. There could be no doubt that one spike had entered the chest, as the air readily passed to and fro through the opening at each respiration; and there could not be the slightest doubt that the lung was wounded, inasmuch as, when the opening was closed, emphysema occurred, and gradually extended itself. Mr. Walker, the house-surgeon, closed the external opening with the twisted suture and plaster and bandage; but the latter was removed, as the man could not bear the slightest pressure over the right side of the chest, as it rendered his breathing more difficult. A broad piece of leather plaster was therefore substituted for the bandage. An ounce of brandy and an opiate were given.

I saw this man a few hours after the accident, and found him breathing with considerable difficulty, lying on his back, and inclining his body to the *left side*. The right side of his chest was resonant throughout, in fact it was quite tympanitic, as shown by percussion; but I did not think it right to make any examination by auscultation, as such examinations are calculated to do infinite mischief—I mean when a patient is directed to make a deep inspiration just to satisfy the curiosity of some adept at auscultation. I found also that he was emphysematous over a great extent of his body; that this emphysema extended up the front and side of the neck and face as far as the eyelids; that it had passed across the upper part of the chest from the right side to the left, both sides being equally distended with air. You could, however, see that in the middle and lower part of the sternum, in consequence of the tying-down of the skin to the front of this bone at the mesial line, the air had not traversed to the left side at this part. The front of the abdomen on both sides was also permeated by air, but this was limited in the inguinal region by the close connexion between the superficial fascia and Poupart's ligament. But the scrotum was distended equally on both sides. The emphysema did not extend down the thighs into the perineum; in point of fact, it was just limited in extent by the superficial fascia of the abdomen, and afforded a good illustration of the anatomical disposition of that remarkable fascia. His pulse was full and rather bounding; he had passed water; and there was no other especial symptom to which I need refer you.

The case must therefore be regarded as one of penetrating wound of the chest, with wound of the lung and consequent emphysema. That the lung is wounded is at once self-evident, or how could the air escape into the cellular membrane so as to produce emphysema? You may say, "But there is no hæmoptysis." True; but one sign of this condition is enough, and we must not expect all the symptoms to be found in all cases. Regarding the case therefore in this point of view, let us examine the mechanism of emphysema; for the disease is curious, and I allude to the means of diagnosis for the benefit of some junior students here present who are not cognisant of such cases, of which most of you have seen many. There can can be no mistake about the crackling sensation which is always observable, whether the emphysema be of traumatic origin, or whether the air becomes evolved under the putrefactive process in sloughing as a consequence of inflammation, especially in the fetid abscesses occurring *juxta anum*, &c. The case is one, therefore, of traumatic emphysema accompanied by an external wound.

Emphysema may occur from a wound of any part of the air-passages. Thus you may see it occasionally in fracture of the outer layer of the frontal sinuses; from a rupture of one of the lachrymal ducts connected with the *ductus ad nasum;* from a fracture of one of the cartilages of the larynx, or a wound of the trachea, or even of one of the bronchi: these are all illustrations of traumatic emphysema. It is curious to watch the extent to which the air will permeate the cellular tissue of the body. I have seen the neck so distended as to threaten suffocation by pressure on the veins and trachea. I have seen the scrotum blown up as big as a person's head—as is said in Hudibras, "as big as you could blow up veal." I have seen the cellular tissue about the heart itself distended with air; and even the palms of the hands and the soles of the feet I have seen emphysematous. There is therefore no limit to the extent to which the air may permeate the cellular tissue of the body. And I may tell you that the force by which this inflation of the body is accomplished is so great that, after puncturing the scrotum in a case, the force of expulsion was such that the flame of a candle was blown out.

The mechanism of emphysema, is plainly two-fold: either the air is forced into the cellular membrane during inspiration or during expiration. If the wounded lung is adherent to the side, there is no doubt that the air may be drawn into the external cellular membrane during inspiration; but I suspect that this can only happen to a limited extent. But when the pleural cavity exists—that is when the pleura costalis and pleura pulmonalis are free—emphysema occurs thus: at each inspiration air is drawn into the pleural cavity, which thus becomes gradually distended; and when expiration occurs, the pleural cavity being compressed, the air cannot pass into the opening of the collapsed lung, but is forced out of the chest into the subcutaneous cellular membrane, which it gradually distends. Under these circumstances, if you percute the chest, you perceive that it is preternaturally resonant throughout; and if you place your ear to the chest, the respiratory murmur is scarcely audible.

In the case under consideration, there was an external wound made by the spike of the railing, and the air was heard passing in and out during respiration; and when the patient was first admitted, the emphysema was limited to a small space around the wound. But when the house-surgeon, Mr. Walker, closed the wound, then the air began to penetrate to the cellular tissue more readily, and extended itself to the distance already described. If this description of the mechanism of emphysema be correct, in its first stage it really represents a case of genuine traumatic pneumothorax.

*Treatment.*—In this case the wound was most accurately closed, and all escape of air externally was prevented; and I would say that this is the appropriate treatment in all such cases. It is, however, just possible that a case may happen in which it may be desirable to let the air out of the chest either through the wound or by puncturing the chest with a trocar, as was exemplified in a case the other day, where Mr. Dove, one of our house-surgeons, punctured the chest with a trocar in a case of emphysema, arising from a ruptured lung from the passage of a heavy body over a boy's chest, to obviate impending asphyxia, and this was done with complete relief to the patient, and with ultimate success. However, in this case there was no decisive evidence of a broken rib, and the presumption is that the escape of air was, as I have stated, from a rupture of the lung by forcible compression. The other lung was damaged, but not ruptured, and the elasticity of the ribs contributed to the effect. Had the rib been fractured, most probably a genuine emphysema would have occurred. I therefore assume that emphysema rather tends to relieve the chest of the effused air, and thus does good instead of harm.

Should the emphysema be so extensive as to interfere with respiration, as when the veins of the neck and air-passages in the neighborhood are much compressed, you had better puncture the skin with a lancet, and allow the air to escape. I have often done this with manifest advantage, and you can do no harm by the procedure. You may puncture in any situation you please. I would, however, advise you to make your puncture where the largest accumulation takes place, as, for instance, in the scrotum; for it is by the inter-communication of parts of the body through the medium of the cellular tissue that an escape of air from one part will afford relief to the whole. An elastic bandage is usually desirable, but cannot always be tolerated. As to general treatment, moderate support, with a brisk purge, accompanied by a gentle diaphoresis, quite supersedes the method of treatment formerly conducted on strictly anti-inflammatory principles, now almost obsolete, although not to be entirely lost sight of in cases where acute pain attends every respiratory effort, and where suffocation is impending: the loss of six or eight ounces of blood, followed by an opiate, may then be fairly advocated.

The case was cured.

# Original Papers.

## ON SOME SOURCES OF FALLACY IN THE DIAGNOSIS OF PHTHISIS.

By W. F. Wade, B.A., M.B.,

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In three-and-twenty years I have seen many cases in which mistakes have been made as to the diagnosis of phthisis, and I do not wish to pretend that all the mistakes have been in the practice of other persons, none in my own. It has long seemed to me to be one of the weakest points of our profession that we are so reluctant to admit even to ourselves that we have been in error; and there is, of course, a still greater reluctance to allow that the error has been an avoidable one. I have sometimes perhaps received credit for making a correct diagnosis in difficult cases, where, perchance, others had been less successful; but I have ever felt that my judgment has been more improved, and my opinion, *quantum valeat*, rendered more valuable, by a careful and candid reflection upon cases where I have been mistaken than by brooding on others of a more fortunate type. And yet we are all too apt to dwell upon our successes, and to ignore or unfairly extenuate our failures, even to ourselves. I say even to ourselves, for so long as we do not deceive ourselves, I do not say that it is necessary to parade our blunders before ignorant or unthinking persons; but, on the other hand, my experience has not taught me that wise and thoughtful people think the worse of one who is willing candidly and thoughtfully to admit an error, without seeking to gloss it over or palliate it in a disingenuous manner.

Regarding especially the errors made in the diagnosis of phthisis, we find that, as usual, they resolve themselves into those of ommission and those of commission. A person is said to have phthisis whom the event proves to have been free from it; or, on the other hand, is pronounced free from it, when by the inexorable logic of subsequent facts that opinion is falsified.

Before entering into special suggestions applicable to individual cases, it is opportune to point out one general source of fallacy applicable to all.

There is a general reluctance to admit that a case is doubtful, even when doubt is not merely the most philosophical, but the only philosophical, position. The general practitioner fears to imperial his hold upon the confidence of his patient by admitting that he cannot tell whether his patient is or is not phthisical. The consultant, called in for the express purpose of solving an admitted difficulty, requires still greater philosophical courage to confess that, whilst the evidence obtainable cannot fail to raise suspicion, it is yet insufficient to justify a positive opinion either one way or the other. And yet there is a stage in all organic diseases where we are justified only in doubting. And I entertain a conviction, which I trust may never be overturned, that in such cases, both as regards the profession and the public, honesty is, in the long run, the best policy. This position is true, and not only as regards those local organic diseases which are but the expression of constitutional conditions. For example, let us admit, not only that there is in phthisis a pre-tubercular stage, but that its peculiarities are such as to enable us to identify it prior to any development of its local expression. Even here we are compelled to admit that there is a time when it fails to afford sufficient evidence to justify an unqualified and unhesitating verdict, however shrewed and grave may be our suspicions.

There is to my mind but little practical inconvenience in having our suspicions aroused at a stage where we are unable to set them at rest. This is the time when of all others the case is remediable. It ought to be, and indeed I think is, admitted to be an axiom in medicine that the patient should have the benefit of any doubt which may exist; and it will, I think, be admitted without discussion that, in the vast majority of cases, the patient has that benefit if we advise such a course as we should do had circumstances compelled us to form a more positive though less favorable opinion. In all probability, such persons are broken down in health from over-lactation, overwork, or other exhausting causes; and the hygienic measures which are suitable to a case of early phthisis are just those which are most likely to relieve these conditions, which, if unattended to, are well calculated to produce either phthisis itself, or a state of permanent-ill-health scarcely more hopeful, and perhaps even more in-consistant with the active duties of life. Possibly the patient, less anxious, because less far-seeing than ourselves, may neglect our advice, and get well in spite of his neglect. We should feel satisfied if, upon a careful review of the case, we still feel that our advice was the most prudent possible. According to a very astute man, Talleyrand, it sometimes shows better judgment to be deceived than not to be deceived. Paradoxical as such a dictum may appear, the philosophy of it is not far to seek or difficult to understand. With regard to giving patients the advantage of a doubt, there is one other remark to make. The propriety of doing so is well illustrated in the kind of cases already alluded to, and from a consideration of them and others we may deduce a very useful general law, viz.: when in our diagnosis we halt between two opinions—one that the disease is a curable one, the other that it is incurable,—we should treat the patient upon the hypothesis that his disease is curable. For example, we may doubt in one case between phthisis in some form and an idiopathic fever, or in another between simple gastric ulcer and cancer of the stomach. In the first instance, we should undoubtedly proceed upon the supposition that the case is one of idiopathic fever, and in the other that it is one of simple gastric ulcer. It seems to me that the reasons for this law are so obvious that it is unnecessary to specify them in detail.

Coming more particularly to the subject of this paper, it is scarcely necessary to remark that the general principles of the diagnosis of phthisis, both physically and symptomatically, are well established, and that I have therefore no intention to recapitulate or reorganise them. And it should be borne in mind that there is a wide difference between difficulties and fallacies. There will always remain cases in which, from one cause or another, the best informed physician, the most careful investigator, and the most wary man, will find great, perhaps insurmountable difficulties. But as regards fallacies, to be aware of them is to be able to avoid them. The case which is obscured by a source of fallacy of which we are ignorant, becomes transparent the moment that source of fallacy is pointed out. It has thus occurred to me from time to time that certain minutiæ which by times, or rather the neglect of which by times, lead to error might be usefully pointed out, and this I purpose doing with special reference to errors that have come actually under my notice.

Errors have been committed even by high authorities, some due unquestionably to simple carelessness, and others absolutely inexplicable, and to such I shall not further allude.

Amongst the sources of fallacy which beset the diagnosis of phthisis pleurisy takes a foremost place. The relations of the two are, indeed, exceedingly complex and interesting; but it would be beyond the scope of this paper to regard them all.

A local dry pleurisy at the apex of the lung not unfrequently furnishes sounds which are with difficulty distinguished from the sounds, creeking or quasi-moist, dependent upon tubercular deposition. It is of high importance to distinguish between the two;—of the more importance inasmuch as there are not a few practitioners who would jump to the conclusion that the pleurisy is a sufficient indication of tubercle in the adjacent lung. Careful observation has convinced me that local apicial pleurisy may effect a person with unquestionable tubercular tendency without being conjoined with any actual deposit of tubercle recognisable after the cure of the pleurisy.

Acute pleurisy with effusion produces at a certain stage accoustic phenomena, which physical examination, if limited to the subclavian space, cannot with any certainty distinguish from those of softened tubercle. The lung is pressed upward by the effusion, and so condensed as to afford breathing of a tubular character, to be distinguished from tubercular consolidation, or even from a cavity, with difficulty, if at all. The sounds of the voice and the vocal vibration lend us no assistance in differentiating the two conditions. Furthermore, the attrition of the parietal and visceral pleuræ, covered possibly with soft lymph and lubricated by the liquid effusion, produce sounds so similar to mucous rattles that they are calculated to deceive the most practised ear. We thus get an apparent combination of those phenomena which, according to Barth and Roger (whose dictim on this point I am much disposed to accept), are the only sure diagnostics of a cavity—namely, tubular breathing with moist rattles at the same point. This fallacy is to be avoided by attention to the history of the case, by examination of the whole of the affected side and not of the apex only, and more especially by a continued observation of the mutations of sound consequent upon progressive absorption of the fluid. At the same time it is to be noted that in such a case there may be a history which suggests tubercular deposit antecedent to the acute pleurisy. In such a case we are not justified in giving any opinion founded on physical examination till the pleuritic condition has absolutely passed away. The secondary changes which a lung in some cases undergoes in consequence of a severe pleurisy give rise to many physical phenomena, as well as rational symptoms, resembling those dependent upon tubercular deposit and softening. These have been carefully observed and well described by competent authorities; it is therefore unnecessary to say more here than that a want of due acquaintance with the literature of this most important topic has, more than once within my own knowledge, led to an erroneous diagnosis of phthisis. It may be useful just to note that in this condition the "cracked pot sound" is not unfrequently exceedingly well marked. This sound is also oftentimes to be produced by percussing the chest of children in whom there is no evidence, scarcely even a suspicion, of anything besides bronchitis; and in them it is often to be heard over a very considerable area.

It is believed by some persons, whose opinion is entitled to respect, that a dry pleurisy on the right side is most commonly indicative of, or at least associated with phthisis; and if it be so it is a matter of practical importance.

What is called laryngeal phthisis is usually, if not invariably, ordinary pulmonary phthisis, with laryngeal complication. It is a disease commonly of great obscurity; that is to say, whilst the rational symptoms of phthisis are easily to be perceived, yet the stridor developed in the larynx in a great measure, often completely, obliterates the sounds produced by the pulmonary deposit. Now, it is a well-ascertained fact, though not so readily explicable, that in laryngeal phthisis it is the right lung which is affected, or, if both be diseased, that which is most deeply implicated. In such a case, then, the fact of a dry pleurisy on the right side is a valuable corroboration of our suspicions. Though not directly connected with pleurisy, it is convenient to refer here to another consideration which should weigh with us in the diagnosis of laryngeal phthisis. Inasmuch as the lung disease, if any be present, will be found in the vast majority of instances on the right side, it is clear that any suspicious or indefinite sound heard on the right side is vastly more significant than if it occurred on the left. It is not needful to specify more minutely the various sounds which come within the category of suspicious ones; they are sufficiently familiar to anyone who takes an interest in this question.

The physical signs of a pneumonia at the apex might readily be mistaken for those of tuberculous deposit by an observer who neglected to take into consideration the history of his patient. It is true of pneumonia as of pleurisy at the apex, that during its presence we must positively decline to give a decided opinion that tubercle is absent—that is to say, unless we have had an opportunity of making special investigation prior to the pneumonic attack. At the same time it is, I think, quite an exception to meet with distinct physical evidence of apicial pneumonia in a tuberculous lung. And for my own part, I should consider that unquestionable pneumonia of the apex was, as far as it went, an encouragement to believe that the apex was free from tubercle.

Had it not occurred to me to see both mistakes made, I should scarcely have ventured to imagine that phthisis might be mistaken for typhoid fever, and typhoid fever for phthisis. In expressing surprise at this, I should have said that the former mistake was not made in a case of acute phthisis, the diagnosis of which is (at a certain stage at least) one of much difficulty. Were practitioners habitually careful, when dealing with any case of pyrexia, to consider in the first instance whether the fever belonged to the great class of primary fevers or to the other great class of secondary fevers, such a mistake could scarcely be made by any moderately competent person.

We now turn to a consideration of some circumstances which may lead to a fallacious opinion that phthisis is absent, when it really exists.

In the first place, it must be borne in mind that there is no pathognomonic physical sign of any stage or condition of tubercular deposit in the lungs. The process by which we arrive at the diagnosis of phthisis is a reasoning one of some complexity. It is true that in the ordinary diagnosis of flagrant cases several members of this argument are suppressed. Indeed, so commonly is this done that many persons never know how many or what links there really are in the chain. But a want of this knowledge is certain, on some occasions, to lead to avoidable error. Imperfect as our science of diagnosis must be admitted to be, I see more mistakes made through the imperfection of the individual using it than through the imperfection of the science itself. I cannot avoid remarking here that formal logic is often most derided by those who have most need of it. And this contempt is often excused by reference to some of those quasi self-evident propositions which are given in illustration of the syllogistic form. It is just as if one were to sneer at arithmetic because the fact that two and two make four might be given as an illustration of one of its rules. There is no such test of the accuracy of our premises and the correctness of our conclusions as the reduction of an argument to the form of a syllogism. Were this done, how many things in medicine which are supposed by the mass to be proved would turn out to be merely probable in a higher or lower degree.

Some of the most important signs of phthisis, and, indeed, those of which we most commonly avail ourselves in practice, are moist sounds, rattles of various kinds at the apex of the lung. Connected with these there are several sources of fallacy; and as these signs are those most often actually used, so these fallacies are those which most often lead astray. In the first place, moist sounds, of whatever kind, even at the apex of the lung, and there only, are *per se* no evidence of phthisis at all. Their value as evidence depends entirely upon the perfection of the chain of argument of which they are, it is true, a most valuable link. One peculiarity of these sounds, which careful persons do not neglect to ascertain, is their permanency. It is curious how, day after day, we may examine a chest and find always there the same click or the same mucous râle. They are not permanent because they are directly produced by tubercle, for they are not; but by mucous secretion, of which, indeed, the tubercle, which is permanent, is the immediate cause. This is very far from being a distinction without a difference. The truth is, that in not a few cases these, reputed permanent, râles occasionally disappear, and we then lose a very important element of our diagnosis. A little consideration of the causes of this occasional absence will enable us in many cases to secure the assistance which their presence really affords us.

In the first place, it often requires a full, free inspiration to develop them, even when the mucus is present in sufficient quantity. Thus, in feeble, stupid, or nervous persons, it may be impossible to obtain sufficient respiratory freedom unless their circulation and respiration are so quickened by exercise as to compel them to breathe freely, whether they will or no. It is clear that such persons should not be examined in bed only.

The formation of the upper portion of the chest in some persons causes so much murmur, from pressure on the subclavian by the stethoscope, as to be a real source of embarrassment and difficulty; but it can scarcely be termed with propriety a source of fallacy.

In another class of cases the removal of mucus from the chest, which, as we know, is common after rising in the morning, is so complete that none is left to produce a rattle. In such cases it is clear that we avoid a great source of fallacy by examining the patient in bed, before the morning expectoration has occurred. The practical lesson we draw from these two classes of cases is that, in doubtful cases, where the history, symptoms, or appearance of the patient suggest the probability of latent phthisis, we should invariably abstain from pronouncing him to be free from it till we have had an opportunity of making careful examination under different, and indeed, as nearly as may be, opposite circumstances.

Another practical lesson of almost equal importance is that, in examining a case of suspected phthisis, we should listen to each side during ordinary respiration before making the patient take forced or deep inspirations; and again we should be careful, when the patient does take a forced inspiration, to listen first to the lung which we more strongly suspect to be the seat of disease, lest, while we are listening to the sound side, the forced respiration should have removed the mucus, and with it the morbid sounds it produces, from the diseased lung. On the other hand, if we hear a moist rattle at the apex, we must not forget that it is not impossible to have mucus there, and there only, in a non-tubercular lung. But then it is not likely to be there constantly, or even frequently.

It is principally from considerations of this kind that the wisdom of the following axiom becomes apparent—viz.: "Never pronounce an opinion upon a case of supposed phthisis without more than one examination."

There is another reason for observing the precautions above mentioned. I entertain no doubt that in some cases of early phthisis some auscultatory phenomena—for example, feeble inspiratory murmur, possibly also semi-bronchial breathing—depend upon collapse of the lung. This collapse is capable of being removed by forced respiration; and we may thus deprive ourselves of valuable information, which, if it did not justify us in pronouncing the case to be absolutely one of phthisis, would, at all events, guard us against the opposite danger.

The muscular murmur is certainly sometimes a source of fallacy, imitating, as it may do, abnormal respiratory sounds; it is also a source of fallacy in the diagnosis of heart disease. In the case of the lungs, we should be careful to listen attentively to the muscular murmur whilst the patient abstains from breathing; we shall by that means be able to estimate its real amount, and we shall not afterwards find much difficulty in disentangling it, if I may use the expression, from the genuine breath-sounds.

The information afforded by auscultation and percussion is so precise, and commonly so full, that the necessity for occasionally supplementing it by other means is not so generally recognised as it ought to be. The thermometer has of late been made serviceable in this respect.

In acute phthisis the stethoscopical phenomena are inadequate to establish the diagnosis, at all events for some time. I have consequently known of instances where the practised eye of a physician unskilled in the use of the stethoscope has recognised the true nature of the case, which a skilled stethoscopist, relying solely on his instrument, has failed to do. It is scarcely needful for me to say that I have no desire to depreciate physical diagnosis, but only to point out that in this special class of phthisis it is a source of fallacy if it be too exclusively relied upon.

In some cases of senile phthisis, too, from the general diffusion of the tubercle, the stethoscopical signs are chiefly those of bronchitis, and an implicit reliance upon them leads to error.

In such cases as these the thermometer is a more reliable guide than the stethoscope. But it must not be forgotten that it too requires to be read by an instructed mind, and not merely by the eye. False inferences may be deduced from thermometrical as from other observations. The following is an illustration. A man was found during convalescence from small-pox to have an unduly high temperature, without evident cause; the inference of tuberculosis was drawn. He left the hospital, and passed from under notice. About twelve months after he was seized with symptoms of paralysis, and admitted into hospital under my care. He shortly became comatose, and died. On dissection we found a chronic abscess of the brain, and one also of the spleen, which was, indeed, converted into a bag of pus. His body was quite free from tubercle. It is well known that before we draw from the temperature any inference with regard to tubercle, we must first of all exclude, amongst other things, the possibility of local suppuration. Whether the error in this case was avoidable or not I have no means of judging. If it was not, it points out a source of fallacy in the thermometrical diagnosis of phthisis. It is of importance to note briefly that some cases of cancer of the lung are with difficulty to be distinguished from phthisis, and that as there is such a thing as cancerous hectic, a too exclusive reliance upon the thermometer may lead us widely astray, as I have in one instance found.

The microscope has lately been made more available for the detection of phthisis, and it will afford us invaluable assistance in cases where the stethoscope fails. For example, in cases of what is called "latent pleurisy," no amount of purely stethoscopical skill will avail us; the physical signs of pleurisy drown those of phthisis. Indeed, I think that an expert stethoscopist, trusting, as there is danger of his doing, too implicitly to his ear, is more likely to be deceived than a less skilled person trusting to his common sense, and judging from the general appearances and history of the patient.

It has long been known that in phthisis the lung is disintegrated, and that portions of it are expectorated. It has also been long known that these fragments of lung-tissue can be identified by the microscope. But the difficulty of discovering them, even in cases where we might be certain that they were present, from their being inextricably mixed up with mucus and pus, has prevented the microscopical diagnosis of phthisis being as much employed as it ought to have been.

We are, therefore, deeply indebted to Dr. Fenwick, who has suggested a plan of treating the expectoration, which enables us to find the fragments of lung-tissue, and place them in the field of the microscope with as little trouble as it costs us to demonstrate tube-casts in the urine. This facility of manipulation will doubtless lead to a much more frequent employment of this means of supplementing and correcting the information derivable from other sources in cases of supposed phthisis. We shall probably before long have an opportunity of ascertaining from a multiplicity of observations the exact value of this particular method of investigation. That it, like the stethoscope and the thermometer, has its own peculiar sources of fallacy we may well expect to find. If so, it will the better teach us the necessity of correcting one kind of evidence by another, and that accuracy of diagnosis requires care in observation, caution in deduction, and withal modesty remembering that to err is human.

Birmingham, Dec. 1867.

# THE NATURAL HISTORY & TREATMENT OF LATERAL CURVATURE OF THE SPINE.

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## No. II.

In the previous paper on this subject, I gave in a very few words the results of very many careful observations and experiments extending over several years. Those results show conclusively that all the natural curves of the spine are produced simply and entirely by muscular force acting on the column; and that lateral bending, combined with a commensurate amount of rotation, constantly accompanies many, indeed most, movements of the body. Perhaps some notice should be taken of a theory which, in order probably to justify the application of steel splints, would endeavor to prove the spine all but immobile. The author of a recent voluminous work says, "Horizontal rotation of the vertebræ exists only in the most limited degree, if indeed it can be said to exist at all, in the dorsal and lumbar regions." (Adams on Lateral Curvature, p. 177.) "The flexibility of the spine in a lateral direction is extremely limited." (p. 42.)[*] "The appearance of great mobility, either in the anterior or posterior direction, is largely contributed to by the free ball-and-socket articulations of the hips and of the head." The author has thus come to the singular conclusion that the spine is all but a stiff column, from certain arguments about the position and direction of the articulating processes. The reasoning, however, is somewhat unsatisfactory, and it may be permitted to doubt its value when we encounter an explanatory diagram in which the axis of rotation is placed behind the tip of the spinous process (p. 111), in which case rotation would indeed be limited. The axis of rotation between any two vertebræ is just behind the posterior edge of the bodies—i. e., in the spinal canal; and the spinal cord is placed close to that part of the vertebral bodies—i. e., in the axis of rotation,—that pressure during such movement may be avoided.

I have, on the otherhand, found rotation and lateral flexion to be both considerable and constant; and believe myself in a position to show that the forces, which in health produce these movements, are the same which, under circumstances to be detailed, cause dorsal and lumbar lateral curvature. Moreover, that in the usual form of such curvature the intervertebral cartilages and the bones do not suffer morbid change until the disease has lasted for many years.

Lateral curves affect seventeen vertebræ (wryneck being excluded); of these, twelve are dorsal, and five lumbar. It very seldom happens that the spine assumes one simple curve from end to end.[†] There are, on the contrary, at least two in opposite directions; and it is important to observe, that however much the spine may be bent and twisted between rump and neck, the cervical spine is forced by the necessity of balance to remain perpendicularly over the sacrum. Although it occasionally happens that between these two points more than two curves occur, we will at present only consider the usual and ordinary cases—those, namely, in which there is a dorsal curve to the right, and a lower curve to the left; generally termed lumbar, although dorso-lumbar would be the more correct term. Either of these curves may be primary, not in point of time, but of causality. Since, by the law of reaction, a secondary or compensating curve is necessary, it follows that the two must be simultaneous. Thus, although the morbid cause may only produce one curvature, that one instantaneously calls forth another, which although simultaneous in time, is, nevertheless, secondary in the sequence of causes.

A curve is named according to the direction of its convexity: thus a curve to the right means a curvature whose convexity looks in that direction. With all such morbid bends rotation is combined; the vertebræ turn in such a direction that the anterior face looks towards the convexity of the curve, and the tips of the spinous processes look towards the concavity. Thus the anterior part of the column deviates much more than the posterior. In future paragraphs I shall make the following distinction:—Normal movement or position of the vertebræ will be called flexion and rotation respectively; morbid movement or posture will be named curve, bend, and curvature, and torsion, twist, turn, or the like terms.

We shall first treat of curvatures primarily dorsal, and in doing so must consider three coincidences: the occurrence of torsion, the predominance of dorsal curvature to the right side, and its preference for the female sex. These three circumstances, more especially the first, have not as yet been satisfactorily accounted for. All unbiased persons, studying English and continental works on the subject, will inevitably come to that conclusion; nevertheless, any theory which leaves one or the other point unexplained must be inadequate, in all probability false, and I would beg the reader to dismiss at once any such theory, my own among them, which does not clearly show the reason for each of the three occurrences above named. Among inadequate theories, we must reckon debility, convulsive or spastic contraction of muscles, paralysis of respiratory function, &c. &c. There is, however, one idea which, being just now very prevalent, must be specially noticed—viz., that over-action of the right arm produces the tendency of curvature to that side by the direct influence of the muscles passing between scapula and spine. Of this notion we must observe that in all such actions those muscles would draw the scapula to the spine, not the spine to the scapula. If, indeed, the arm and hand be fixed on some immovable object, the spine might be influenced by these muscles; but since they are attached to the spinous processes, torsion would take place, not as it really does, but in the contrary direction—viz., to the left. Therefore this theory is quite untenable; whatever influence the arm has upon the curve is by its passive weight.

Fully convinced that the forces which produce normal rotation must be the same as those which under altered conditions give rise to abnormal torsion, I carefully sought what muscles could effect rotation to the extent shown by my index; for it appeared to me that the spinal muscles proper in the dorsal portion of the column are not so placed as to produce this effect. Somewhat unexpectedly, I found that rotation of the vertebræ in all the upper part of the column is effected by the *Serratus Magnus*, which when thin persons are under observation stands out during such action strongly and sharply. Let the reader consider the anatomical relations of this part. Two muscles (rhombodei major and minor) arising from the spine at the root of the neck and top of the back are inserted into the base of the scapula; from this point the serratus spreads out, fan-shaped, to be attached to the ribs from the first to the ninth inclusive. For the particular action in question these muscles may be regarded as one broad fleshy layer, which, arising from the upper part of the spine, sweeps round and embraces the back and sides of the chest; and in this view the intervening base of the scapula is to be considered merely as an intersection, like the semilunar lines in the abdominal rectus. This muscular arrangement acts at great advantage in turning the upper part of the body on the pelvis; its base of attachment to the spine is small, its leverage short, that to the chest very large, and in contracting it draws the ribs of that side backward. Each rib, having attachment to the body and also to the transverse process of vertebræ, becomes thus a lever of the second class, whose power arm is the length from the muscular attachment to its head, whose weight arm is the distance from head to tubercle; it is indeed a crow-bar very powerful to twist each vertebra on its own axis. This function of the rib is attested by the fact that when the serratus ceases to be inserted, the spinal attachment of the rib no longer affords a purchase for such action. In losing the double conjunction to body and transverse process, the lower ribs abrogate the arrangement of fulcrum and weight necessary to lever-like action on the vertebræ, and at the same time the serratus ceases to be attached to the ribs.

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[*] The indicator of my rotation-measurer—an unerring mechanism—proves that the dorso-lumbar spine rotates on an average 50 degrees eace way—i. e., 100 degrees in all. Photographic measurement showed that the spine can with ease bend laterally in an arc whose radial distance is less than its own length.

[†] Nearly all the examples which I have seen of this condition were manifestly hysterical.

Now let us consider the action of the serratus under another point of view. It was said in a former paper that only a very small portion of the weight of the shoulder was supported by the upper fibres of the trapezius, otherwise its action on the head would have to be counteracted by other muscles, which would greatly interfere with the freedom and mobility of the head and neck. Therefore the upper angle of the scapula hangs to the spine by its levator muscle; but the outer angle, the shoulder-joint and the arm, is supported by the serratus, which, drawing the base and lower angle of the shoulder outwards and forwards, keeps the outer angle (acromion and shoulder) upwards and backwards. The weight, therefore, of the shoulders and of the arms falls, through the medium of the serrati, upon the ribs, and this weight tends to keep them back—equally of course, on both sides of the chest if the arms be of equal weight.

The most important function, however, of the serrati is respiratory; they lift and draw back the ribs on each side of the chest as far as the freedom at the joints permits, thus enlarging the cavity of the thorax. In forced inspiration this action is very marked; but man during quiet breathing hardly uses the muscle at all, his respiration being chiefly abdominal; woman's ordinary quiet breathing is, on the other hand, very much more pectoral, her chest and bosom rising constantly with each inspiration even during sleep. In woman then, more than in man, the ribs are drawn backwards in inspiration—an action which would be equal on both sides of the chest if both lungs admitted the same quantity of air.

The hypothetical sentences at the end of the last two paragraphs are of importance. The arms are not of equal weight, nor are the lungs of the same size. A boy or youth, however, uses free exercise, swings his arms as he walks, and lolls and lounges about in all conceivable positions, thus giving variety to the manner in which the shoulders are supported; and, above all, he breathes chiefly by the diaphragm. The girl or young woman takes less free exercise: in walking she lets the arm hang almost motionless from the shoulder, sits decorously upright, so that the weight of the arms hangs all day long, through the medium of the serratus magnus, on the ribs; and, far more important, her breathing is chiefly pectoral. Now let the ribs be regarded, in the manner above described, as powerful levers, which, under the sway of the serratus, can rotate the spine should the one muscle act more powerfully than its fellow; and consider the girl thus circumstanced, with the right arm heavier than the left, with the right lung more capacious than the left, and it will be seen that the serratus of the right side, being more weighted and in stronger respiratory action than its opponent, must of necessity rotate the vertebræ to the left side. This explanation will at once account for the rotation of vertebræ, and its prevalent direction. Moreover, a crucial proof, if I may use such a term, is found in the fact that European women, who by tight clothing round the waist and abdomen increase their tendency to pectoral respiration, are the frequent subjects of lateral curvature; while among Hindoos, Arabs, and others who use a loose form of dress, such deformity is all but unknown.

Again, when part of one lung becomes from some local disease unfit for its function, the ribs covering that portion cease to move, and are uninfluenced by that particular serration of the muscle. Therefore the corresponding ribs of the sound side bulge backward, and the cognate vertebræ become crooked. This is not produced by contraction of the lung on the diseased side (there is frequently rather swelling than decrease in bulk), but from inaction of the serratus over the affected spot; the opposite parts of the muscle therefore on the sound side must twist the vertebræ, since their action is unbalanced on the morbid side of the chest. So accurate is this correspondence that we may fix upon the part of lung most affected, by noting the ribs which protrude on the sound side, and the locality of the spinal deviation. In curvature from consumption, we find nearly always a high short dorsal curve, as in a patient recently sent to me by Dr. Cotton; in pneumonia the curve is low and long, as I have had more than once occasion to remark in cases at the Charing-cross Hospital.[*]

It will, of course, be remarked that in this explanation I entirely change the sequence of casuality. It is usually stated that the spine first curves laterally, then rotates, and in this latter movement, by dragging with it the ribs, deforms the chest. I affirm that the ribs are primarily drawn backwards, and, acting as levers, twist the vertebræ, which in consequence deviate from the right line; according to a simple mechanical law and yielding to the new direction in which the erectors of the spine now act; for in this rotated condition straightening the spine curves it naturally to the right, and in lateral curvature much of the sideways distortion is in reality extension.

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[*] By no other method can we account for the fact that in pleurisy, when the size of the contents on one side of the chest is increased and afterwards, when, the lung being bound down by adhesions, their size is diminished, we still have curvature in the same direction—i.e., from the diseased side; the ribs on that side ceasing to move on respiration.

In this etiology the different weight of the two arms is not nearly of so much importance as the peculiarities of the respiratory function; yet even in the male subject the spine is twisted slightly to the right so frequently that such condition is by some regarded as normal. A man, after the amputation of one arm, acquires by the action of unequal weight a certain amount of lateral twist, rarely sufficient to constitute a noticeable deformity. When, however, a girl carries a weight constantly on one arm its power in contorting the spine becomes considerable, and we occasionally find nurse girls become very crooked from such cause. In these cases the lumbar muscles on the other (the left) side of the spine are found very much developed in consequence of increased action counterbalancing the burden carried.* In such cases the compensatory lumbar curve is established simply for the sake of balance; not so the secondary curve in cases arising from respiratory causes. The two forms are distinct not only in causation but in form, and in the action of subtending muscles. How and why these differences arise must be the subject of another paper.

If the two causes (one-sided pectoral breathing and the influence of weight) be combined, as is frequently the case, their distorting power is very great; but the former is undoubtedly the more influential, and is continuous both night and day. European women, as above stated, increase this peculiarity of thoracic breathing by wearing tight petticoat strings, corsets, and belts round the waist; also many plump girls, in desire to restrain any unsightly, however blameless, enlargement of the abdomen, frequently compress that part with belts or corsets, and thus by almost entirely checking the respiratory movements of the abdomen place themselves in a position of dangerous facility for acquiring dorsal curvature.

This leads me, even at the risk of apparent repetition, to reconsider the grave cause of objection to the "spinal support" to which I referred in my last paper.

We have seen that there is great difficulty, or rather impossibility, in fixing around the pelvis a steel hoop so immovably that a lever springing therefrom can make effective pressure on a protuberant portion of the spine or ribs. In order, however, to render the pelvic hoop of a spinal support as little movable as possible, straps and bandages fastened upon the instrument encircle and are tightly laced upon and around the abdomen. We have also just seen that excessively thoracic breathing of women (since the right lung is larger than the left) is the real and efficient cause of spinal deformity. Such exaggeration of woman's natural character of respiration is produced chiefly or entirely by tight swathing of the abdomen; for where this form of dress is not used, as in hot climates, lateral curvature is a very rare deformity. It is hardly necessary that I should ask the reader to compare the cause of lateral curvature with its prevalent treatment by an instrument which in every possible way adds largely to the very root and origin of the malady by preventing abdominal movement in breathing. Nor need attention be called to the singular fact that tight rigid stays have always, with justice, been regarded as productive of lateral curvature; yet as soon as a girl shows any inclination to that deformity, she, under such treatment, is fixed in stays, more tight, more heavy, and more onerous than the most tyrannous devotee of a barbarous fashion could invent. Yet we must in justice state that in a certain small number of cases these instruments have produced benefit—namely in such as are caused, not by the more usual respiratory conditions above mentioned, but in that far smaller number produced by distribution of weight always to one side of the body. In such cases the good is effected by the crutch-handle, which relieves the serratus magnus of the weight of the right shoulder. This may, however, be effected in the cases where it is desirable by means far simpler, and which do not produce such restraint and so many evils.

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# GRADUAL INTRUSION OF THE BODIES OF TWO VERTEBRÆ INTO THE CRANIUM THROUGH THE FORAMEN MAGNUM.

## WASTING OF THE MEDULLA OBLONGATA; PULMONARY PHTHISIS.

By Alfred Lochee, M.D.,

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and

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The subject of this singular displacement of the bones of the neck was a patient under the care of Dr. Lochee, in the Canterbury Hospital, by whom the morbid specimen, together with an account of the case, was presented to the museum of the Middlesex Hospital. At the request of Dr. Lochee, Mr. Moore has completed the report of the morbid appearances, and furnished the explanations and remarks which they suggest.

Emma C——, aged sixteen, came under the care of Dr. Lochee, in the Kent and Canterbury Hospital, Nov. 11th, 1862, complaining of stiffness of her neck and hands, and of pain at the back of her head. She was stunted in growth, and looked like a child of thirteen; her body and limbs were extremely emaciated; her face was full and florid, but it was puffy, and the eyelids were rather œdematous. There was great rigidity of the muscles of the neck and upper portion of the spine, and the head was perfectly fixed and motionless on the vertebral column. The posture of the head also was unnatural, the chin being depressed, and approaching, though not touching, the sternum. The back of the neck looked swollen and deformed, the spinous process of apparently the fourth cervical vertebra being very prominent, as well as tender on pressure. The hands were drawn at the wrists; the fingers were half flexed, and so stiff as to be only partially extended by the application of considerable force. The feet and toes were similarly contracted by continuous muscular spasm, although in a much less degree. There was no actual paralysis, but the muscular power was feeble both in the arms and legs, and all movements of them were slow and hesitating. There was no paralysis of the sphincters. Sensation was not at all impaired; in fact, rather the opposite condition, that of hyperæsthesia, existed. There was no affection of the sensorium; on the contrary, the mental faculties were remarkably keen and active. Articulation was distinct, though the voice was low and weak. Vision was perfect, though the pupils were large and sluggish. There was no long sleep, which was obtained only by short snatches. The respiration was somewhat quicker than natural, and there were crepitant râles and dull percussion over the greater part of the right lung; but owing to the pain occasioned by moving her, no very careful or extended stethoscopic examination was made. The heart's sounds were normal; the pulse regular at 110, but very feeble. The bowels acted once daily; the urine was sufficient and healthy; the catamenia had never appeared.

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* This condition must be distinguished from mere bulging of the parts through backward projection of the transverse processes, as will be shortly explained.

The pain of which she complained was almost entirely confined to the occipital region, so long as she was lying quietly on her back. Any attempt to raise her chin caused considerable pain in the upper cervical vertebræ. Pressure on these bones and general movements of her trunk also increased her pain.

The history she first gave of herself was that nine months previously she had had an attack of "rheumatic fever," and that her present condition had come on gradually from it. On further questioning, however, she explained that she had been suffering from "headache" and weakness of the limbs for several years; and her mother subsequently stated that, independently of the rheumatic attack, she had been under medical treatment for gradual loss of strength, wasting of the limbs, and pain at the back of the head, off and on for at least six years. She had not been known to have met with any injury.

During the earlier part of her residence in the hospital it could not be distinguished whether the fixedness of the neck was due to disease of the bones, and consequent contraction of the watchful muscles, or to some obscure disease of the nervous centres. The symptoms above detailed were ascertained with difficulty, and were not all collected at once. Accordingly they were first thought to indicate one of those anomalous cases akin to reflex paralysis, which might depend upon nervous irritation anywhere, and which are therefore not necessarily connected with any primary lesion of either of the nervous centres. Zinc, strychnia, iron, and opium were all tried, both separately and together, without any benefit. Then, amongst many other guesses as to the possible nature of the case, it was thought likely to be dependent on structural disease in the cerebellum, probably of a tubercular kind, the state of the right lung, even upon slight examination, pointing to the presence of tubercles there. The marked absence of any amaurotic condition, however, seemed to prohibit such a conclusion. But although it was thought venturesome during the life of the patient to declare any positive diagnosis, there was a striking similarity in the symptoms, so far as respects the rigidity of the neck, to those in Sir Astley Cooper's case of fracture of the odontoid process. Dr. Lochee often alluded to that case when visiting his patient, and as often spoke of the possibility of disease existing in that process, merely from the firmly fixed position of the neck and head.

About the middle of December the occipital pain, which extended also down the back of the neck, had so much increased that, by way of experiment, leeches were applied behind the ears. These gave marked relief for twenty-four hours, when the pain returned with increased violence. Repeated doses of morphia kept her tolerably easy so long as their influence lasted; but, although she took a fair amount of nourishment, and seemed to digest it easily, she was evidently sinking day by day. No change worthy of note occurred in the symptoms from this time until the date of her death; there was simply a gradual failure of the vital powers—the pulse gradually going out, the respiration gradually ceasing. Her mind continued perfectly clear and active to within an hour of her death; for at that time she told the house-surgeon that she was dying at last, thanked him for all the kindness and attention he had shown her, sent a message to Dr. Lochee to the same effect, and then, after about half an hour of coma, ceased to breathe, on Jan. 5th, having been fifty-five days in the hospital.

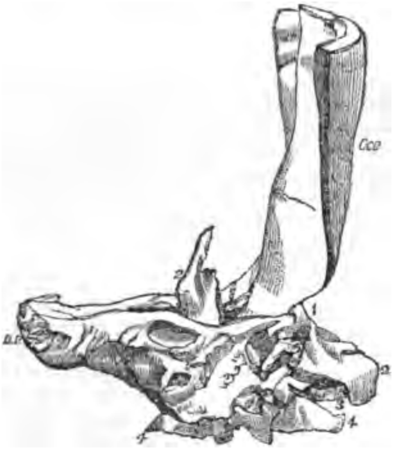
But a short time was allowed for the post-mortem examination, which, in itself a difficult one, was rended still more so by being hurried. The brain was healthy throughout. There was some serous infiltration of the subarachnoid tissue, and much congestion of the pia mater. The sinuses of the dura mater also were very turgid with blood, as well as the veins running into them, and especially those of the longitudinal sinus.

Considerable difficulty was experienced in removing the brain. The endeavor to divide the medulla at the foramen magnum in the usual manner was thwarted by some unseen deformity of the bones at that part. When the base of the skull was at length brought into view, a process of bone, of a pyramidal form, and an inch in height, was seen rising through the foramen magnum, and so narrowing that aperture that but a small space was left at its posterior part for the medulla oblongata. The projecting bone had lain during life in contact with the cerebellum and the right side of the medulla. The portion of the medulla immediately within the grip of the invading exostosis was compressed, and even flattened, but was not otherwise perceptibly diseased.

The right lung was full of tubercles in various stages of progress, some of them so near the pleural surface as to have given rise to post-mortem emphysema on their removal. The left lung was full of miliary tubercles only.

The bones were removed for a more precise examination after they had been macerated.

*Description of diseased bones.*—The specimen comprises all that remains of the four upper cervical vertebræ, (1, 2, 2, 3, 4, 4,) together with the adjoining third of the occipital bone. (BP, *occ.*) The lower part of the fourth vertebra (4,·4) is healthy, and has its natural articulations for the fifth. The upper part of it, and the three above it are firmly united together and to the occipital condyles at all their articulations, and are strangely compressed and distorted. Their laminæ and spines (1, 2, 3, 4) are disposed in a curve which is convex backwards, but they are little otherwise displaced, and not more than one-eighth of an inch is lost in their vertical depth, measured from the plate of the occipital bone to the tip of the fourth spinous process. The bodies, however, the odontoid process, and the anterior half of the atlas are no longer recognisable, being all anchylosed together into one mass. They are, however, so thrust upward that the body of the third cervical vertebra is in the foramen magnum, and the lower edge of the fourth body is but half an inch instead of two inches and three-eights (which should in a girl of seventeen be its distance) below the basilar bone (B P). The upper extremity of the mass (2), an uneven hollow pyramid, surmounted by a short spiculum of bone, projects through the foramen magnum, scarcely less than an inch into the cranium. Together with this ascent of the higher vertebræ through the foramen magnum there concurs a marked elevation of the basilar process of the occipital bone, which no longer slopes, but is horizontal. The pyramid of bone, jutting upward, occupies nearly the centre of the foramen magnum. Between its anterior surface and the front of the foramen is a distance of seven-sixteenths of an inch, whilst the gap between its hinder surface and the posterior margin of the foramen measures but three-eights of an inch. This latter, the smaller space, was the aperture for the medulla oblongata.



On looking down it, the narrowed vertebral canal appears to be of an elliptical shape, little more than half an inch in its lateral extent, and a quarter of an inch from before backward. This view does not, however, really represent the dimensions in any part of the canal for the cord, the distorted walls of the canal being uneven both before and behind, and the projections forward and backward being not precisely opposite one another. From the zigzag direction indicated by the shape of the bones, the medulla was less compressed than at first sight appears. The channel for it was, however, reduced in two places to five-sixteenths of an inch. And these are the measurements between the macerated bones; in proportion as the membranes were thickened by disease the narrow spaces for them and for the cord must have been yet more seriously diminished.

The description thus far shows the deformity of the bones in relation to one another and to the medulla: it remains to mention how the cervical nerves and the vertebral arteries were affected by it. The remnants of the occipital condyles being nearly on the level of the body of the fourth vertebra, it has necessarily happened that the articular processes, intervertebral foramina, and transverse processes of the intermediate vertebræ are either compressed and stunted, or that they share the curvature backward of the laminæ and spines. Both these changes have, in fact, taken place; and the result is, that the canal for the vertebral arteries is not only devious, but greatly reduced in calibre, and that those vessels must have been extremely small. For the first cervical nerves, the second, and the fourth, the spaces of exit through the bones, though smaller than natural, may have sufficed. But the foramina for the third are so minute that those nerves must have dwindled to insignificant threads.

This case was one of chronic disease of the bones and joints at the upper extremity of the spinal column. It was attended with softening, partial absorption, and compression of the upper four vertebræ and of the adjoining portion of the occipital bone, and eventually with anchylosis of their joints, but not with suppuration. In all respects except the last, it corresponded with the ordinary vertebral disease which issues in angular deformity of the back. The particular relations of the higher bones to one another, however, so modified the distortion as to lead to the intrusion of some of the bodies into the cranium. In whatever region of the spine the disease occurs, it may affect any portion of a vertebra, and lead to its yielding at that part, under the weight it bears. Where the vertebral body both sustains the weight and is the part diseased, the column sinks, and forms an angle at the carious spot. But in the top of the neck, though the bodies be diseased, they do not bear the whole weight, and consequently may not sink. In the present case the disease involved the body of the second vertebra, and led to its excavation, not to its vertical compression. But it also affected the lateral masses of the upper four vertebræ, and they, in proportion as they bore the weight of the head, diminished in perpendicular measurement. Had the ligaments of the odontoid process remained entire when this happened, it must have been fractured; and had there been any firm body above it, it must also have been compressed. But when released from restraint by the destruction of its ligaments, it rose as the head subsided on its yielding lateral supports; and it entered and passed through the foramen magnum, in which there was no firm structure to resist its ascent. The patient died when the top of the process had amounted to the height of an inch within the cranium, and when the body of the third vertebra was in the foramen magnum.

A somewhat similar specimen was presented to the Hunterian Museum by Mr. Lawrence, who also furnished the history of the patient in the thirteenth volume of the "Medico-Chirurgical Transactions." The deformity, however, and the constriction of the vertebral canal, in that instance, do not equal that which is the subject of the present paper. Mr. Lawrence's case occurred in a child who, at five or seven years of age, had disease of the upper vertebræ of the neck, attended with the formation of an abscess. At no period of the complaint was there any interruption or diminution of sensation or voluntary motion; and the child recovered completely, so as to be able to walk and run, although during its illness it never ventured to move the head without cautiously supporting it with the hands at the sides. At twelve years of age the child died of angular deformity of the lumbar vertebræ with a large abscess. On examining the bones, it was discovered that the atlas was much displaced to the left both from the occipital bone above and the axis below; and that the greater part of its right lateral mass having been absorbed, the support of the right occipital condyle had been lost, and the head had sunk considerably on that side. The result of this subsidence of the head and of the detachment of the atlas from the axis was that the odontoid process projected by its whole length into the cavity of the skull at the anterior part of the foramen magnum, close to the right anterior condyloid foramen. The measurement of the spinal canal, in its narrowest part, was half an inch from before backwards, and five-eighths of an inch from side to side.

The symptoms produced in Emma C——, by the invasion of the territory of the nervous system, appear most remarkable for their moderate severity. Some indications of it were, indeed, absent which might have been looked for in such a case. For instance, the great projection of bone indented the cerebellum, but excited neither epilepsy nor any convulsive affection. The medulla oblongata was diminished to about half its natural size, without a loss of sensation, without an exaggeration of the reflex functions of the cord, without hiccough and disordered respiratory actions, and without the occurrence of bed-sloughs. There was no sign of injury of the spinal accessory nerves. These very deficiencies, however, throw light upon the production of such symptoms. They appear to have been absent for two principal reasons: because the medulla at its narrowed part was wasted, not compressed; and because its further narrowing, to a degree which would have more nearly severed the cord from the brain, was interrupted by the fatal progress of disease in the lungs. For these is an essential distinction between the compression of nervous tissue and its emaciation. Pressure promptly arrests the function of the whole compressed part: emaciation reduces the nervous textures, accommodates them to a narrower residence, and leaves them still partially useful. And this latter statement holds good, even when the attenuation of the nervous fibre is induced by pressure, if only the pressure act gradually, and within the degree at which all that is essential in a nerve is absorbed.

In the present case the function of the medulla oblongata was but partially abrogated, and the symptoms were limited to defective voluntary power, and a permanent contraction, resembling rigor mortis, of all the muscles. The rigidity was not confined to the muscles of the neck, but was common to all voluntary muscles below the shrunken medulla. Above that part the functions were natural, or even increased. The intelligence was remarkable, and was evidently in no way interfered with by the reduction in the supply of blood through the vertebral arteries. The carotids, without doubt, partly made up for this defect, and must certainly have nourished the anterior better than the posterior lobes of the brain.

The state of the bones supplies no explanation of the pain occasioned by moving the patient. They were firmly anchylosed, and could have jarred neither one another nor the cord. Some of the pain was plainly due to the stretching of the stiffened muscles, for it could be brought on in the arm by extending the fingers. But inasmuch as the occipital pain was constant even during repose, it was probably seated in the medulla itself. This structure must have been rather abruptly indented, and must have come into incommodious contact with the bones at every motion which stretched the cord below, as well as on the gentlest sliding of the brain above. Hence a continual discomfort at the pinched spot; and hence, perhaps, also the incapacity for sleep, since the medulla, accustomed to repose in water, would be deprived of the quiescence necessary for sleep when pillowed on bone. On the other hand, the hyperæsthesia in the distal parts might have resulted conversely from the same irritation.

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CLINICAL REMARKS

ON THE

# TREATMENT OF ANTEFLEXION AND ANTEVERSION OF THE UTERUS BY A NEW FORM OF PESSARY.

By Graily Hewitt, M.D., F.R.C.P.,

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The discomforts and inconveniences produced by various deviations of the uterus are, according to my experience, many in number. Putting aside for the moment marked cases of prolapsus, where the nature of the affection cannot well escape recognition, there are very many instances where bending of the uterus unduly forwards, or laterally, or posteriorly, gives rise to troublesome dragging sensations, pain in one groin, difficulty in walking comfortably, and various other symptoms of lesser magnitude, the true cause of which is not unfrequently overlooked. Ovaritis, metritis, neuralgia, &c. &c., are often, under such circumstances, supposed, but erroneously, to be the cause of the suffering of the patient.

Mobility is a quality which the uterus should possess to a limited extent only. Passing those limits, painful sensations arise from undue mobility in whatever direction, and one result is, that the uterus assumes a permanently faulty position in the pelvis.

We have here, however, to do only with the effects, and not the causes, of uterine flexions and deviations. The object at this moment is to insist on the importance of recognising and treating the slighter as well as the more marked instances of these "positional" affections of the uterus.

The diagnosis of anteflexion or anteversion is considerably more difficult than that of retroflexion.

The recognition of the first requires a considerable experience in digital examination; the fundus uteri is readily felt through the posterior wall of the vagina, but not so easily anteriorly, owing to the intervention of the bladder. Lateral displacements are very frequently overlooked because the pressure of the finger is not made sufficiently deeply. The association of lateral with anterior version is, I have found, rather common, and constitutes a very troublesome affection to treat satisfactorily.

In all cases of uterine deviation there is a tendency to displacement downwards also; the uterus is almost invariably found lower than it should be in the pelvis; and, in fact, the first stage of some of the severer forms of prolapsus is often a slight ante- or retro-version of the uterus. If this be admitted, and it is most certainly true, the greater importance attaches to the treatment of uterine deviations at an early period.

An attentive consideration of the subject has convinced me that, in the treatment of uterine deviations, the base of support in any mechanical contrivance must be the vagina; that the first object is to maintain this canal in its proper place and position in the pelvis, and the second to adjust on this basis a support which shall afford pressure in the proper direction. Any method of treatment which does not maintain the vagina in its proper position and direction cannot do all that should be done.

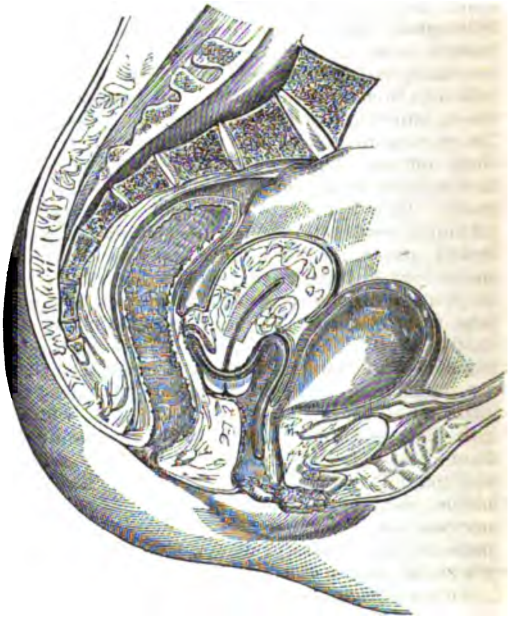
In bad cases of prolapsus, when the uterine cervix escapes beyond the vulva, the operation of narrowing the vaginal orifice is often practised, and very usefully so; and in like manner Zwank's pessary, affording an artificial floor or termination to the vagina, prevents the uterus from escaping externally. Both these methods, however, fail in maintaining the uterus in its *proper* place, because they deal only with the vaginal orifice; they are necessarily valueless in dealing with slight forms of uterine deviation.

The ball pessary, made of wood, ebony, india-rubber, &c., acts in a different manner. It elevates the uterus in the pelvis and prevents the descent of that organ as a whole. It is of service, but the benefit derived is dependent on the kind of deviation present. The stem pessary, in which the support is applied by means of a rod from without the cervix uteri, resting on a sort of cushion, is an improvement, in one sense of the word, on the ball form of apparatus.

For some time past I have treated cases of retroflexion of the uterus by means of the pessary known as Hodge's, consisting of a ring of gutta-percha-covered metal bent into a somewhat quadrangular or horse-shoe form. This pessary is most useful. The secret of its success is that the principle above alluded to—that of keeping the vagina of a proper shape—is carried out: the fundus uteri cannot descend in the pelvis because the vaginal cul-de-sac behind the os uteri is kept in its proper place in the pelvis. One essential point is, that the pessary fit the vagina, and its length and breadth serve to be carefully adjusted in each case.

The treatment of cases of anteversion and anteflexion, hitherto a matter of great difficulty, I have of late carried out very satisfactorily by a new form of instrument. There are two points to be attained: first, the maintenance of the vagina in its proper length; the second, the application of pressure upwards in the direction of the pelvic curve and in front of the cervix. First of all, I employed an oblong ring to fulfil one requirement, and a semicircular projecting half-ring, soldered to the other, to carry out the second. This was unwieldy, but I soon devised a means of attaining both ends in a comparatively simple manner. The drawing shows the form of pessary which I finally adopted and now employ. Its form is difficult to describe in words. (A profile view only of the pessary is shown in the figure.) The length must be such as to just distend the vagina, and no more. Its breadth below must be such that it is retained, and the upright projecting arms have to be correspondingly modified in particular cases. It is quite remarkable how very little irritation or uneasiness this instrument occasions. Its introduction is effected with extreme readiness; and, if of the proper make, it does not slip. The material of the pessary is copper, wire covered with gutta percha. This is readily bent, and moulded and fitted to its place. The uterus is kept by it in a sort of cradle; motion forwards or downwards to an undue degree is impossible. This pessary has been worn by patients for several weeks at a time without inconvenience, and with full relief from the symptoms produced by the anteflexion. If worn for a long time, a light hollow silver tube instrument should be constructed on the model found to suit.

The superiority of this new instrument over the air-ball pessary I formly used with advantage in cases of anteversion consists in its not distending the vagina unduly, as the air-ball does. The disturbance in the shape of the vagina which it induces is comparatively slight.



The instrument can be modified to deal with cases of lateri-flexion most readily. All that it is necessary to do is to give one of the upright arms of the instrument a slight backward inclination, this being given on the side towards which the uterus inclines.

Berkeley-square, November, 1867.

ON

# THE NATURE AND THE MODE OF PROPAGATION OF CONSUMPTION.

By Richard Payne Cotton, M.D., F.R.C.P.L.

**Senior Physician to the Hospital for Consumption, Brompton.**

The paper under the above heading which appeared in the January number of the present year from the pen of Dr. William Budd, deserves, as well from its source as from its novelty, the gravest consideration. Dr. Budd tells us that he regards phthisis as a disease of specific and contagious nature, closely allied in this respect to the most contagious diseases with which we are acquainted—viz., typhus and scarlet fevers; the tuberculous matter itself being the specific and morbid poison from which the disease is produced. If such views be correct, they will completely revolutionise both the medical and social treatment of consumption; they will make the poor consumptive sufferer a being as much to be dreaded as the leper of old; and they will at once crush every hope of our lessening the ravages of this terrible scourge by the manifest impossibility of our ever being able to "stamp out" so universally prevalent a poison. If Dr. Budd's views be incorrect, the interests of both the consumptive and the healthy require that they should be proved to be so.

Continued and very anxious thought upon this subject, based, too, upon an unusual amount of personal observation, has long ago brought me to a conclusion directly opposed to that of Dr. William Budd. The more I see of consumption the more am I convinced that its lamentable prevalence is to be ascribed to causes very different from that which he suggests. I have never met with a case of true pulmonary consumption, however apparently due to contagious influence,—and that such cases often present themselves I readily admit,—which could not be more easily accounted for upon generally recognised causes than upon specific and contagious influences.

The subject is a very comprehensive one, and its due consideration greatly exceeds both the space I can expect in the pages of The Lancet, and the time which I have at present at my command. Following the example of Dr. William Budd, I must content myself with briefly stating my own conclusions, reserving for some future communication the grounds upon which such conclusions have been formed.

1st. I believe phthisis to be a purely constitutional disease, which may be either inherited or acquired, but which is incapable of being communicated by one person to another *in the ordinary sense of a contagious disease.*[*]

2nd. I regard tubercle as the product of such constitutional disease, just as lithate of soda is of gout, and sugar of diabetes.

3rd. I consider that a person may be really consumptive, or, in other words, may have this constitutional disease, whilst the tuberculous elements are still in the blood—that is to say, before they are deposited as tubercle in the lung or other tissues.

4th. Although I think it very possible that tuberculous matter, like many other diseased products, may be introduced into the system by artificial inoculation, producing its like, or something more less similar to it, I do not believe that tubercle can exist naturally in such a state as to be, as Dr. Budd expresses it, "disseminated through society" *by the ordinary principle of contagion.*

5th. I think it probable, although at present not perhaps quite demonstrable that there are varieties of consumption, both in degree and kind; but I am unacquainted with any such variety forming an exception to the general principles which I have stated above.

A little practical proof is worth a large amount of theory, however plausible such theory, may be, and however highly and ably supported. A great experiment upon the zymotic character of phthisis has been going on for some years in the Consumption Hospital at Brompton. If Dr. William Budd's views be correct, this hospital, as well as every like institution, must be nothing more nor less than a pest-house, and must afford sad and repeated proofs of its banefulness. But what are the facts of the case? I cannot do better than give them in the following letter kindly furnished by Mr. Edwards, the long-experienced resident medical officer of the institution.

"Consumption Hospital, Brompton, S. W., Oct. 25th, 1867.

"My Dear Sir,—The following statistics represent, as fairly as I can recall them, the result of my own observations, during the seventeen years that I have myself resided within the hospital. They are submitted to you in reply to inquiries you have made of me upon the subject.

"The present building was partially opened in the year 1846 with 90 beds. Ten years later it was completed; and for several years past, 200 beds have been constantly occupied. To the present time 15,262 *in*-patients and 102,369 *out*-patients have been under treatment.

"*Resident officers.*—I remember personally fifty-nine resident clinical assistants, whose duration of office has averaged quite six months. To the best of my belief, all but two are living (forty-nine having their names in the Medical Directory for this year, and others are known to be in the army, &c.) Of the two deceased, one died of aneurism and the other from a cause unknown to me, but he had left the hospital some years. Three now living are said to be consumptive. One of them is known to you to be so. He was resident here in 1854, and left us before the usual time to join the Crimean army. He afterwards married and commenced private practice, where his health failed. He is now in Australia, and in the active pursuit of his profession. The second, *I have been told*, has had hæmoptysis; but, as his name is in this year's Directory, I presume he is still living. It is more than five years since he left us. The third is said to have tubercle at one apex; and is now on his way to Australia as surgeon on board ship. He left the hospital four years ago.

"*Chaplains.*—The present chaplain (not resident) has held office for more than seventeen years and his two predecessors are living. He has no other duty.

"*Matron.*—The matron has been resident in the hospital more than sixteen years. The former two matrons are living.

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[*] It is not impossible that, under certain circumstances into which I cannot now enter, but which do not affect the question nor give any support to Dr. Budd's views, this constitutional condition may be conveyed from husband to wife, and, perhaps, but with less probability, *vice versâ.*

"*Secretary and Clerks* (not resident).—The secretary has been here nearly ten years, and his predecessor held the appointment for fourteen years. The latter is now in Canada. Seven *junior clerks* have been here for periods varying from a year and a half to four years. All are, I believe, living and *well*, except one, who left us six years ago. Two years since he had symptoms of phthisis, and spent the winter of '65–66 in Madeira. When seen a few weeks ago he was looking well.

"*Dispensary Officers.*—Ten have been in the dispensary; their work is not among the in-patients, but the dispensary opens into the out-patient department by two small windows, through which medicines are dispensed. Of those now there, one has been in office eight years, one five years, and one three years and a half. A former dispenser was here eleven years, and another three years; both are living, and for part of their time were resident. One died, at the age of nearly seventy, of heart disease; a second, a youth, died of phthisis; a third was here for a year and a half, and, I am informed, died of phthisis six months after leaving to join a private business.

"*House-porters.*—Eight porters have resided in the hospital; and all are, I believe, living, except one, who died from the effects of an accident. Part of their duty is to remove the dead from the wards, and attend to their subsequent removal from the dead-house. The last post-mortem room attendant was here many years, and died at the age of fifty-four from the effects of intemperate living. His successor has been here five years. One porter, four years resident, is now engaged in the out-patient department for several hours daily, in rooms crowded at times with patients.

"*Nurses and servants.*—Very many nurses and servants have been in residence for periods varying from months to several years. The staff consists of four head nurses, ten under nurses, and four gallery or ward maids. The head nurses sleep each in a room opening into a gallery containing fifty patients; the others sleep on a floor above. Two head nurses only are known to have died. One, after a residence of several years, at the age of sixty. Her death was from apoplexy; though a few days before her decease cavernous breathing was heard in one lung, but its tubercular origin was doubtful. The other head nurse was here seven months, and left to be married. Her husband deserted her. She had much trouble, and obtained a situation at the Millbank Penitentiary, where her health, I believe, first failed. She died of phthisis in this hospital. Of the nurses now in residence: one has been here twenty-four years, and is now only nominally on duty; two have been here twelve years; one, eight years; one, seven years (whose husband previously died a patient in the hospital); one, six years and half; one, five years. Of nurses and servants who have left, and are believed to be still living, one was here twenty-three years; one, thirteen years; one, six years and a half; two, four years and a half; one, five years; two, three years. No under nurse, so far as I am aware, has been the subject of phthisis.

"The *gallery maids* are young women. Their chief duty is to sweep and scrub the floors of the wards, in which they are occupied several hours daily. I know of the death of only two of these girls. One was here for fifteen months; had subsequent situations of all work; in the last one she fell ill, and came into this hospital as a patient and died here. The other died of organic heart-disease. Many of these girls obtained better situations, and several left to be married.

"All the *physicians* who have attended either in- or out-patients here during the past seventeen years are living, except two: one died from causes not connected with disease of the lungs; and the other died abroad—from disease unknown—after an absence from the hospital of about twelve years.

"I thankfully add, in conclusion, that, after a residence myself of just seventeen years, I am in good health.

"I remain, my dear Sir,
very faithfully yours,
"Vertue Edwards,
"Dr. R. P. Cotton, &c. &c." "Resident Medical Officer.

During the four years preceding Mr. Edwards's connexion with the hospital, one assistant-physician and one clinical assistant fell victims to consumption. Of the hereditary claims of the former to the disease I am unacquainted; but the latter belonged to a consumptive family, one of his sisters having, to my knowledge, previously died of the same malady. These were the only phthisical cases in those officially connected with the hospital during this period.

My experience of one of the largest metropolitan general hospitals during a period equal to that described by Mr. Edwards, as regards the frequency of phthisis amongst its official staff, is decidedly in favor of the Hospital for Consumption. In the same number of years I have known at the former institution one physician, one surgeon, one chaplain, two house-surgeons, and four or five former dressers or clinical assistants succumb to this fatal disorder. So far as phthisis is concerned, I am convinced that the Hospital for Consumption can show a cleaner "bill of health" than the General Hospital.

Upon such evidence few, I think, will be disposed to include phthisis amongst infectious diseases. Should any doubt exist upon the subject I would suggest a comparison of the foregoing statistics of the Consumption Hospital with those of any other hospital exclusively devoted to the treatment of so-called zymotic disease.

Clarges-street, Piccadilly, Oct. 1867.

ON THE

# TREATMENT OF OBSTINATE CONSTIPATION BY FARADISATION OF THE BOWEL.

By Julius Althaus, M.D., M.R.C.P.,

**Physician to the London Infirmary for Epilepsy and Paralysis.**

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As the treatment of habitual constipation by diet, regimen, and medicines is far from being uniformly successful, and as I have reason to believe that faradisation of the bowel is but seldom employed in that most troublesome affection, I have thought it worth while to place on record a few of the somewhat numerous cases which I have found to yield readily to that plan of treatment, after immense quantities of purgatives had been ineffectually taken, and after years of mental and bodily distress to the patients.

CASE 1.—An unmarried lady, aged forty-three, tall, of sallow complexion and sedentary habits, consulted me on Feb. 2nd, 1866, for a "nervous affection," from which she had suffered for many months past. She complained of a constant dull headache, of giddiness on rising in the morning, a wearying feeling of mental depression, and frequent flushings of the face and ears. Her hands and feet were habitually cold. Her sleep was unrefreshing, being disturbed by unpleasant dreams; and too short, for she slept on the average only two or three hours a night. Her intellect and memory were as good as ever, but she found it difficult to fix her attention on any subject, and felt a distressing sensation of pressure on the head after reading or writing. The latter circumstance annoyed her a good deal, as she had been a zealous supporter of various philanthropic undertakings, which required a considerable amount of correspondence. She was sometimes troubled with palpitations of the heart: the heart's sounds were weak; the pulse small and feeble. The breath was generally short; the chest otherwise healthy. The tongue was dry, and covered with a yellowish-white coat. The appetite was feeble, and digestion tedious and painful. For many years past the patient had suffered from obstinate constipation, for which she habitually took purgatives. If she attempted to do without any, she felt great pelvic distress, especially in walking and standing, and considerable increase of all the head symptoms. She had chiefly taken cremor tartari, aloes, nux vomica, colocynth, scammony, and podophylin. The evacuations were hard and ill-formed. The urine was generally scanty and highly turbid, and she had often a scalding sensation in passing it. She had a small fibroid tumour of the uterus, for which she had consulted several obstetric physicians, who had advised that it should be let alone. At the time of the catamenia her sufferings increased very much indeed. Purgatives then seemed to increase the menstrual flow to an alarming extent; it often, in fact, amounted to true menorrhagia, which lasted for ten or twelve days. She therefore generally took much smaller doses of purgatives during that time; with the effect that the loss of blood was not so copious, while, on the other hand, the pain and discomfort about her head were so dreadful that she often thought she would loose her senses. Her habitual dose of purgatives was now two teaspoonfuls of cream of tartar twice a day, and ten grains of compound colocynth pill at bedtime.

As she had lived too exclusively on meat diet, I ordered her to take boiled fruit and saccharine vegetables; to discontinue the cream of tartar entirely; to take five grains of compound colocynth pill at bedtime, and a tumblerful of Marienbad water twice during the day; and finally, to take as much exercise in the open air as possible without fatigue.

Feb. 25th.—Has found great relief from the change in her diet and from the Marienbad water. Last period was more comfortable than it had been for many months past. Has not been able to take much exercise, because it brought on palpitation of the heart. Ordered to go on as before, but to take the colocynth pill only every other night.

March 18th.—Has been worse for the last week or ten days. The Marienbad water seems to have lost its effect. Has been obliged to take ten grains of colocynth pill daily for the last few nights. Head most uncomfortable; extreme depression of spirits. I now substituted Friedrichshall for Marienbad water, and allowed her to take five grains of colocynth pill every night.

April 20th.—The last period was just as bad as ever. The Friedrichshall water only relieves constipation when taken in large doses, which she believes to be lowering, and is ineffectual as soon as the dose is reduced. I now proposed to the patient the application of galvanism, for inducing a healthier action of the bowels; and, as she consented at once, I introduced an insulated metallic sound, the top of which only was free for about an inch, and which at the other extremity was connected with the negative pole of the primary faradic current, into the rectum, a moistened conductor connected with the positive pole being placed on the abdomen. A current of moderate power was then allowed to pass for fifteen minutes. The patient did not complain of any pain or discomfort from the application, but said she felt more lively and hopeful than she had done for a long time.

24th.—She came to me in high spirits saying that since the faradisation was used she had every day had a better motion than for many months past. I ordered her now to discontinue the colocynth pill entirely, and merely to take a wineglassful of Friedrichshall water thrice a day.

From that time forward the patient made an uninterrupted recovery. Faradisation was continued twice a week for a month after which neither medicines nor mineral waters nor the galvanic stimulus were any longer required. The head symptoms disappeared gradually, in proportion as the action of the bowels was restored; and when I last saw the patient (July, 1867) she was perfectly well, excepting the somewhat too copious menstruation, which was now the only trouble she experienced from the fibroid tumour of the uterus.

CASE 2.—A married woman, aged twenty-eight came to me in July 1866, with the complaint that her bowels were very much bound, and that she suffered from difficulty of walking and micturition, and a sense of distressing fulness in the pelvis. She said that her parents had made her take Morison's pills from a very early age for everything that ailed her, whether it might be a headache, a bad finger, or a sore throat. She had always had difficulty with the bowels after taking pills for some time. She was married in 1863, and had had two children, the last in January, 1866. After the first confinement, the bowels were very sluggish indeed, and required strong aperients to make them act. After the second delivery, this condition was, if possible, worse. She now went sometimes a whole week unrelieved, and, on making exertions for defecation, experienced intense pain about the diaphragm, so as to feel quite sick and giddy. She was restless at night, and generally thirsty, but the appetite was very feeble. The tongue was dry, the abdomen very full and tense, and painful on pressure. Pulse 90. On examining the rectum, I found it choked with hardened fæcal matters, some of which I scooped out at once. I then inserted the negative electrode of the primary current, as above, and sent the galvanic stream through the bowels for ten minutes. On the evening of the same day, a very large quantity of highly offensive fæcal matters came away, with a feeling of intense relief to the patient. Suitable rules as to diet and regimen having been given, and faradisation having been repeated four times more, the patient could be discharged cured. I saw her in May last, when she told me that she had continued perfectly well ever since.

Case 3.—A hard-working merchant, aged thirty-eight, first consulted me in June, 1865, for a troublesome form of dyspepsia, from which he had suffered for many years past. He complained of a feeling of heaviness and oppression after meals, especially after breakfast, coupled with eructations and flatus, which latter gave rise to acute pain until they were discharged. The bowels had been habitually costive since a journey the patient had undertaken to the west coast of Africa, in 1857, where he had suffered from a bad form of dysentery. Ever since that time he had been obliged to "assist the bowels" with purgatives. He had also used enemata of various kinds, but the rectum seemed to resent them, and the patient had taken a great dislike to their use. The tongue was dry and furred. The patient had lost flesh lately in consequence of being compelled to restrict his food to the smallest possible quantity. The urine was clear; the motions dark, hard, and ill-formed.

I carefully regulated the diet, and prescribed a tumblerful of Eger water night and morning, and five grains of carbonate of bismuth twice a day after meals. Digestion and defecation soon improved under this treatment, so that the patient was able to take more food than before, and he felt and looked much healthier and stronger than he had done for a considerable time past. About two months after I first saw him, business obliged him to return to Africa, and I did not see him again till March, 1866, when he was very much worse than he had ever been before. He had been obliged in the interval to take strong purgatives habitually, for ensuring sufficient action of the bowels. Indigestion and costiveness were now more troublesome than ever. The patient was emaciated and exhausted to the last degree. He was unable to do any work or take any exercise, and refused all nourishing food, so that his family were extremely alarmed about his condition. Under these circumstances, an energetically tonic plan of treatment appeared indispensable. I prescribed liquor arsenicalis, with vinum ferri, a dose of pancreatic emulsion in rum and milk twice a day, a compound rhubarb pill, with the twenty-fourth part of a grain of strychnia at bedtime, and faradisation of the bowel twice a week. Under the influence of this treatment the patient rallied wonderfully. The beneficial effects of faradisation in inducing a healthy action of the muscular coat of the bowel were well shown by the circumstance that there was always a very good motion the evening after the application of the electricity, while on those days where it was not applied the action was rather sluggish. At the end of a month the aperient pill was discontinued; the arsenic was taken for another fortnight, and the emulsion for a month more. Faradisation was discontinued at the end of three months, when digestion and defecation were normal. Ever since that time the patient has been in good health, and taken no medicine whatever.

Bryanston-street, Oct. 1867.

## ILLUSTRATIONS
## OF THE
## ANTISEPTIC SYSTEM OF TREATMENT IN SURGERY.

By Joseph Lister, F.R.S.,

Professor of Surgery in the University of Glasgow.

### No. I.

Decomposition or putrefaction has long been known to be a source of great mischief in surgery, and antiseptic applications have for several years been employed by many surgeons. But the full extent of the evil, and the paramount importance of adopting effectual measures against it, are far from being generally recognised.

It is now six years since I first publicly taught in the University of Glasgow that the occurrence of suppuration in a wound under ordinary circumstances, and its continuance on a healthy granulating sore treated with water-dressing, are determined simply by the influence of decomposing organic matter. The subject has since received a large share of my attention, resulting in the system of treatment which I have been engaged for the last three years in elaborating. The benefits which attend this practice are so remarkable that I feel it incumbent upon me to do what I can to diffuse them; and with this view I propose to present to the readers of The Lancet a series of illustrative cases, prefacing them with a short notice of the principles which it is essential to bear in mind in order to attain success.*

The cases in which this treatment is most signally beneficial are divisible into three great classes—incised wounds, of whatever form; contused or lacerated wounds, including compound fractures; and abscesses, acute or chronic—a list, indeed, which comprises the greater part of surgery. In each of these groups our aim is simply to prevent the occurrence of decomposition in the part, in order that its reparatory powers may be left undisturbed by the irritating and poisoning influence of putrid materials. In pursuing this object we are guided by the "germ-theory," which supplies us with a knowledge of the nature and habits of the subtle foe we have to contend with; and without a firm belief in the truth of that theory, perplexity and blunders must be of frequent occurrence. The facts upon which it is based appear sufficiently convincing. We know from the researches of Pasteur that the atmosphere does contain among its floating particles the spores of minute vegetations and infusoria, and in greater numbers where animal and vegetable life abound, as in crowded cities or under the shade of trees, than where the opposite conditions prevail, as in unfrequented caves or on Alpine glaciers. Also, it appears that the septic energy of the air is directly proportioned to the abundance of the minute organisms in it, and is destroyed entirely by means calculated to kill its living germs—as, for example, by exposure for a while to a temperature of 212° Fahr., or a little higher, after which it may be kept for an indefinite time in contact with putrescible substances, such as urine, milk, or blood, without producing any effect upon them. It has further been shown, and this is particularly striking, that the atmosphere is deprived of its power of producing decomposition as well as organic growth by merely passing in a very gentle stream through a narrow and tortuous tube of glass, which, while it arrests all its solid particles, cannot possibly have any effect upon its gases; while conversely, "air dust" collected by filtration rapidly gives rise simultaneously to the development of organisms and the putrefactive changes. Lastly, it seems to have been established that the character of decomposition which occurs in a given fermentable substance is determined by the nature of the organism that develops in it. Thus the same saccharine solution may be made to undergo either the vinous or the butyric fermentation, according as the yeast plant or another organism, described by Pasteur, is introduced into it.* Hence we cannot, I think, refuse to believe that the living beings invariably associated with the various fermentative and putrefactive changes are indeed their causes. And it is peculiarly in harmony with the extraordinary powers of self-diffusion and penetration exhibited by putrefaction that the chief agents in this process appear to be "vibrios" endowed with the faculty of locomotion, so that they are able to make their way speedily along a layer of fluid such as serum or pus.†

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* This plan seems preferable to continuing the formal communication, of which Part I. has appeared in preceding pages of this journal; since I shall thus be left untrammeled as to the order in which the subjects are introduced, and shall be at liberty to notice from time to time any improvements that may suggest themselves in the methods of dealing with the various classes of cases.—J. L.

Admitting, then, the truth of the germ theory, and proceeding in accordance with it, we must, when dealing with any case, destroy in the first instance once for all any septic organisms, which may exist within the part concerned; and after this has been done, our efforts must be directed to the prevention of the entrance of others into it. And provided that these indications are really fulfilled, the less the antiseptic agent comes in contact with the living tissues the better, so that unnecessary disturbance from its irritating properties may be avoided.

The simplest conditions are presented by an unopened abscess. Here, as no septic particles are present in the contents, it is needless to apply the antiseptic directly to the part affected. All that is requisite is to guard securely against the possibility of the penetration of living germs from without, at the same time that free escape is afforded for the discharge from within. When this is done we witness an example of the unaided curative powers of Nature as beautiful as it is, I believe, entirely new. The pyogenic membrane, freed from the operation of the stimulus derived from the presence of the pus pent up within it, without the substitution of the powerful stimulus of decomposition as has heretofore been the case after the opening of abscesses, ceases at once to develop pus-corpuscles, and, exuding merely a little clear serum, rapidly contracts and coalesces discharging meanwhile its unirritating contents completely, whether the outlet be dependent in position or otherwise. At the same time the irritative fever and hectic hitherto so much dreaded in large abscesses are, with perfect security, entirely avoided.

In suppurations of the vertebræ or of the joints the results of this system are such as I ventured with trembling hope to anticipate; patient perseverance being rewarded by a spontaneous cure in cases where excision, amputation, or death must have resulted from any other known system of treatment. In short, the element of incurability has been eliminated from Caries.

In compound fractures and other severe contused wounds the antiseptic agent must in the first instance be applied freely and energetically to the injured parts themselves, the conditions being the opposite of those in unopened abscesses. The wound being of complicated form, with its interstices loaded with extravasated blood, into which septic organisms may have already insinuated themselves during the time that has elapsed before the patient is seen by the surgeon, mere guarding of the external orifice, however effectually, is not sufficient. After squeezing out as much as possible of the effused blood, a material calculated to kill the septic particles must be introduced into the recesses of the wound; and if the substance employed is of sufficient strength to operate to a certain extent as a caustic, this is regarded as a matter of little moment in comparison with the terrible evil of inefficiency in its antiseptic action. For experience has abundantly shown that parts killed in this way, including even portions of bone, become disposed of by absorption and organisation, provided that the subsequent part of the treatment is properly managed.

Sloughs, as ordinarily observed, are soaked with the acrid products of decomposition, and therefore produce disturbance upon the tissues around them, leading first to their gradual transformation into the rudimentary structure which, when met with at the surface of a sore, is termed "granulations," and afterwards to the formation of pus by the granulations. But a dead portion of tissue, if not altered by adventitious circumstances, is in its proper substance perfectly bland and unirritating, and causes no more disorder in its neighborhood than a bullet or a piece of glass, which may remain imbedded in the living body for an indefinite period without inducing the formation of pus; while the dead tissue differs from the foreign bodies alluded to in the circumstance that the materials of which it is composed are susceptible of absorption.

Antiseptic substances, being, like the products of decomposition, chemically stimulating, will, like them, induce granulation and suppuration in tissues exposed for a sufficient length of time to their influence; but there is this all-important difference, that an antiseptic merely stimulates the surface to which it is applied, becoming diluted and weakened by the discharge which it excites; but the acrid salts which result from putrefaction are perpetually multiplied and intensified by self-propagating ferments, so that every drop of serum or pus effused through their agency becomes a drop man. At a little less than one inch below the fold of the left groin is a prominent oval swelling, three inches and a half long by three inches broad. It is smooth, elastic, and strongly pulsating; the impulse closely following the systole of the heart. and with a distinctly expansile impulse. To the touch it gives the impression of an aneurism with thin walls. Heart's sounds normal. The arteries in the other parts of the body, as far as can be ascertained, are healthy.

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* See Pasteur's papers in the "Comptes Rendus," vols. l., li., lii., lvi.; also a report by Milne Edwards on experiments performed by Pasteur before a committee of the French Academy; "Annales des Sciences Naturelles," March and April, 1863.

† I have seen vibrios, so minute as to be only just discernible with the highest power of an excellent microscope, shoot across the field of view with a velocity that astonished me.

*Progress and treatment.*—On August 21st, Mr. Lawson adjusted a Carte's compressor over the femoral artery at the groin, just above the aneurism, screwing down the pad so as to shut off all but a wave of impulse in the sac. The man bore the pressure very badly, and several times in the twenty-four hours the tourniquet had to be relaxed. He could not endure the pain it produced for more than one hour at a time. The man was ordered ordinary diet, with half a pint of porter daily. He took great interest in the treatment, and after he had worn the compressor for a few days he was able to regulate its pressure himself, screwing it up firmly as long as he could bear it, and only relaxing it every hour or so for a short time when he could not endure it longer. The tourniquet was frequently removed during the night, but replaced in the morning. The tumour, however, altered very little until the end of the sixth week, when it became slightly harder, rather smaller in size, and the bounding impulse was diminished.

On October 9th and 10th there was a very decided improvement in the condition of the tumour; its density had further increased, and the pulsations considerably lessened in force. Notwithstanding these changes, Mr. Lawson decided to adopt the treatment pursued by Dr. Murray of Newcastle, and to compress the abdominal aorta so as to completely arrest the flow of any blood through the aneurismal sac.

On October 10th, at three o'clock P. M. (the bowels having been completely emptied by an enema), the man was placed thoroughly under the influence of chloroform. A Lister's tourniquet was applied over the abdominal aorta, just above the umbilicus, and another tourniquet was placed firmly over the femoral artery just below the aneurism. Mr. Moore took charge of the tourniquet over the aorta, whilst Mr. Lawson kept his finger on the artery just above the aneurism, to watch if any blood passed into the tumour. The tourniquets were kept on for twenty-three minutes; only once at the end of the fourth minute did a wave of blood pass into the sac of the aneurism, when the tourniquet over the aorta was at once tightened; but for the remaining nineteen minutes absolute compression of the vessel was maintained, and no blood entered the tumour.—The man now became somewhat collapsed, and began to retch. The tourniquets were then removed and the administration of the chloroform stopped. The pulsations in the tumour were diminished, but they were perfectly regular. It was, however, impossible to say whether the diminution of the pulsations were not due to the collapsed state of the patient. The man was returned to his bed, and the Carte's compressor re-adjusted over the artery. When the effects of the chloroform had completely passed off, he complained of coldness and numbness of the legs, with soreness in the belly. At seven o'clock in the evening, finding that all pulsation had ceased in the aneurism, the man himself removed the compressor. The house-surgeon was at once sent for, and he found that there was no longer any pulsation in the tumour. Since that time the man has continued to improve. With the exception of some feeling of soreness in the belly, which lasted for about thirty-six hours, the patient suffered no inconvenience from the treatment.

October 17th.—The aneurismal sac is now felt as a hard oval mass; the artery which leads to it pulsates strongly, but all impulse ceases at the upper edge of the tumour.

### CASE OF PROGRESSIVE PARALYSIS OF THE FOUR EXTREMITIES,

(Under the care of Dr. MURCHISON.)

We have had frequent opportunities of watching the case about to be related. It is one of more than usual interest, not only on account of its obscure pathological relations, but from the circumstance that improvement has coincided with the following out of a certain mode of treatment, halting when that was interrupted.

J. A——, aged twenty-six, laborer, who has served twelve years at sea, but has been stevedoring—i. e., discharging ships—for the last twelve months, was admitted into the above hospital on July 28th, 1867.

*History.*—He says he always had good health till three years ago, when he suffered from scurvy on a voyage from Calcutta. Under the use of raw potatoes, sliced, and eaten with vinegar, he rapidly recovered, and afterwards went to China, his health remaining perfect. About nine years ago he had a running, but no chancre. He has never suffered from symptoms of constitutional syphilis. About the end of last June he began to feel pains about different parts of his body, especially the shoulders and across the loins. They gradually got worse, so that on July 15th he was obliged to leave off work. He felt very weak. On the following day, it being supposed that he was suffering from fever, he was sent to the Fever Hospital, where he remained twelve days. Whilst there he gradually lost power of left arm and left leg. He could not lift them. His arm hung powerless by his side; his leg he could just drag along the ground. On admission into the Fever Hospital, his chief complaint had been of pain about the left shoulder (deltoid); but the pain was never severe, and was not increased by movement. This was followed rapidly by loss of power, with wasting of the muscles, first of left arm, then, of left leg, then of right leg and right arm. The right side was never quite so badly affected as the left. There was no facial paralysis, no headache or vomiting. He was treated for the first three or four days with alkalies and iodide of potassium, and subsequently with strychnia, iron, and galvanism; but the galvanism was soon discontinued, as it always produced pain.

*Family history.*—His father died suddenly at the age of sixty-five. Mother still alive, aged sixty-three; suffers from rheumatism. One sister alive and well; one died in child-birth.

On admission into Middlesex Hospital he is described as tall, with large bones, and sallow complexion. He has complete loss of power of the left arm, being unable to move even a finger. He can move, but imperfectly, the right arm as well as both his legs. He is unable to stand without assistance. His muscles feel soft and flabby especially those of the left arm. The girth of the left calf, on a line 11″ above the lower border of the inner malleolus, is 12″; that of the *right* 12½″. The left forearm, 15″ from the point of the middle finger, is 8½″; the right forearm, 9″. Although there is great weakness of both legs, he drags the left much more in walking, which he can only do with support. His left arm, he says, feels like a dead weight. There is no pinching, cramp, or other uneasy sensation. Sensibility is impaired in both arms, but more in the left than the right. Two points seem as one at 1⅜″ on the left arm, and 1⅛″ on the right. His tongue is protruded straight. The mental faculties and memory are good. He has no headache, and sleeps and eats well. He never had symptoms of lead poisoning, and shows no blue line in his gums. The heart's apex beats between the fifth and sixth ribs; area of dulness not increased, and no abnormal sound. There is no paralysis of the sphincters. He took at first syrup of the phosphate of iron—a dracum three times daily. On the 2nd of August the application of galvanism to the back of the left arm caused the muscular fibres to contract irregularly giving a vermicular appearance to the surface, like that which has been described as peculiar to progressive muscular atrophy. He was now ordered five minims of liquor arsenicalis three times daily, which he took for ten or twelve days without any improvement.

On the 14th of August a new symptom appeared. He complained of tightness and shortness of breath; the respiration numbered 48, and was mainly abdominal. There was but little movement of the ribs during respiration, but considerable action of the scaleni muscles. The power in the right arm was diminished; he raised his hand with difficulty from his side. He had difficulty in moving his head from side to side, with slight pain if he moved it far. This pain was referred to the muscles on either side, of the spine, and there was no pain on percussion over the verebræ He was ordered a blister to be applied to the back of the neck.

On the 16th his respiration was somewhat easier and numbered only 28, but the loss of power in the right arm was increased. He was now ordered five grains of iodide of potassium and ten minims of tincture of belladonna, with five grains of carbonate of ammonia, three times daily.

For the first few days after this the symptoms if anything, were aggravated; but then there was manifest and progressive improvement.

On the 21st the breathing was described as being entirely abdominal, there being no movement of the ribs even on the deepest inspiration. The right arm could be raised with more freedom.

On the 24th a slight movement of the ribs was noted. He could raise the right arm to the head but used the muscles of the shoulder in a spasmodic manner.

On Sept. 1st it was remarked that he could move the left arm much better, and that he could now get out of bed without help.

He continued to improve daily. On Sept. 4th he walked ten or twelve yards, holding on to the beds. On the 13th he could walk across the ward with the help of a stick; and on the 20th the stick was dispensed with, his arms meantime also gradually acquiring power.

We made the following note on Oct. 11th:—He walks with feeble steps, not throwing out his feet as in locomotor ataxy, but rather like a man who is weak after a long illness. Shutting his eyes makes no difference to him. The right forearm, at a line three inches below the olecranon, measures nine inches and a half in circumference; the left arm at the same spot, nine inches. The grasp of the left hand is very feeble; that of the right much stronger, though not nearly natural. There is much wasting about the interossei, and also of the thenar and hypothenar eminences. The right calf, on a line four inches below the lower border of the patella, measures thirteen and a half inches; the left, thirteen inches. The cutaneous sensibility of the two legs would seem to be tolerably equal, and scarcely impaired at all. That of the left arm is somewhat, but not much blunted. He now suffers no pains anywhere. There is a burning sensation apparently under the skin of both palms. He cannot button his trousers, owing to not being able to feel properly with the tips of his fingers. He says they are "numb." His sight hearing, taste, and smell are good. Shortly after admission he could not turn his head; he now rotates it easily. Eats, drinks, and sleeps well. He is sure he improves weekly. Can lift both arms above his head quickly.

It may be well to add that the only intermission to his progressive improvement was on one occasion when the medicine ordered on August 16th was temporarily suspended for a few days; also, that although he has been taking belladonna for upwards of two months, the pupils are not all dilated—a circumstance not due to the admixture of the salt of potash, as no dilatation took place during several days when he took the belladonna alone.

When this remarkable case first came under Dr. Murchison's care he was inclined to regard it, he tells us, as an example of progressive paralysis from granular degeneration of the muscles. Opposed to this view, however, were—1st, the rapid progress of the paralysis; 2nd, the muscular pains, though slight, which preceded it; and 3rd, the great diminution in the bulk of the muscles. Dr. Meryon, who saw the case with Dr. Murchison, thought these characters contra-indicated simple progressive muscular degeneration. The subsequent history and the effects of treatment leave little doubt that the symptoms were due to some spinal disease, probably spinal arachnitis. Not long ago we saw in the Middlesex Hospital, under Dr. Murchison's care, a woman who presented many similar symptoms, and who ultimately died. Extensive purulent effusion was found plastered over the entire cord and the base of the cerebellum, not beneath the pia mater (as usually happens in the so-called epidemic cerebro-spinal meningitis), but in the cavity of the arachnoid. The particulars of the case are recorded in the last volume of the Pathological Transactions (vol. xviii., p. 14).

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## KING'S COLLEGE HOSPITAL.

### REMOVAL OF AN ENORMOUS POLYPOID TUMOUR FROM BEHIND THE PALATE.

(Under the care of Mr. HENRY SMITH.)

A BOY aged seventeen was sent into King's

College Hospital on Wednesday, Oct. 9th by Mr. Bishop, of Tonbridge, in the following wretched condition. He was entirely unable to articulate except in a whisper; his breathing was performed with the utmost difficulty; and when he lay down to sleep, the noise attending the respiratory movement was such as to keep the whole ward in a disturbance. The countenance was anxious, the skin presenting an unhealthy pallid hue; and there were evidences of great hæmorrhages having been sustained.

On seeking for the cause of these symptoms, it was found that there was an immense tumour involving the space between the hard and soft palate and pharynx; in fact, it appeared to be almost obliterating the greater portion of the cavity of the mouth. The soft palate was thrust prominently forward almost to the teeth, and tightly stretched over the swelling. The right nostril was completely filled up by a mass of the growth, and the walls were greatly distended. Repeated hæmorrhages had occurred from the tumour, and, together with the difficulty in breathing, had reduced the boy to the present miserable condition.

The question was as to whether any further delay was of service, as the boy was in such a feeble state. After due consideration, it was thought best to do something without delay. Sir William Fergusson and Mr. Wood recommended the removal of the growth, and accordingly Mr. Henry Smith proceeded to operate on Saturday, Oct. 12th.

He first carefully examined for the attachments of the growth both from before through the nostril and behind the palate, and found he could pass the little finger between the circumference of the growth and the interior of the nostril; and on passing the finger behind the palate, he could feel the circumference of the tumour, which, however, was of much greater dimensions than it first appeared to be. The most dependent part of the mass was seized just behind and below the palate by a strong curved vulsellum, and there firmly held by Mr. Wood who was requested to make steady traction on the mass. Mr. Smith then introduced a pair of powerful polypus forceps through the nostril, and tried to detach the pedicle of the tumour; but, after three or four attempts in this manner, he failed to accomplish his purpose. The boy, at this time, although behaving admirably, was breathing with great difficulty and losing much blood.

Finding this manœuvre to fail, Mr. Smith, after again making a careful exploration with the finger, both behind and before, passed the forceps with the concavity forwards behind the palate and underneath the tumour, guiding the instrument, as well as he could do so, with the finger, and then opening the blades as widely as possible, he was enabled to seize the pedicle; and using all the force he could, Mr. Wood at the same time drawing on the lower part of the tumour with the vulsellum, the entire mass was extracted, the cavity of the nostril and naso-pharyngeal passage being found by exploration with the finger to be perfectly free from any growth. The boy was much exhausted, and had a smart attack of bleeding afterwards, which was stopped by the injection of iced water, and he lay for two or three hours in a critical condition; but repeated doses of brandy rallied him, and at ten P. M., when Mr. Smith visited him, reaction had fully commenced.

Oct. 13th.—Has passed the entire night in sleep, and is wonderfully well this morning.

14th.—Going on uninterruptedly well; is improving rapidly; breathes easily; and there has been no return of bleeding.

On examination of the tumour, it was found to be of a fibrous nature, composed of several large lobes; and its attachment was by means of a firm and thick pedicle.

### INTESTINAL OBSTRUCTION FROM STRICTURE OF THE SIGMOID FLEXURE; LUMBAR COLOTOMY; DEATH.

(Under the care of Dr. DUFFIN.)

THE question of the kind of operation advisable in a case of intestinal obstruction is only second in importance to the anxious doubt whether the surgeon should interfere at all. There is, probably, no morbid condition in which this latter point has more frequently been the subject of consultation and differing opinion. The frequent occurrence of cases in which an operation has been proposed but not carried out, and the patient has made a spontaneous recovery, tends constantly to perpetuate the feelings of hesitation with which many regard the propriety of surgical interference. On the other hand, the not less frequent discovery on post-mortem examination that by an operation the cause of an obstruction might have been easily removed, serves to keep the question prominently before those who find themselves charged with the responsibility of such a case. The whole subject is carefully considered in the posthumous work of the late Dr. Brinton;[*] and the procedure which was adopted in the following case is quite in accordance with the views which he has expressed. In this case the accuracy of the diagnosis and the propriety of the operation selected were quite confirmed by the notes of the autopsy which unhappily concluded the history of the patient.

A shrivelled-looking old man, about seventy years of age, was first seen by Dr. Duffin, at King's College Hôspital, on the 30th of September last. He said that his bowels had not been properly opened for fully a fortnight; but that he had on two or three occasions during that period passed some small, hard masses. His belly had been gradually increasing in size; but he had had no vomiting. He had an anxious, pinched face; a dry, brown tongue; a pulse of 120, regular, but very feeble; and his breathing was almost entirely thoracic. The abdomen was greatly distended, and generally pyriform in shape. The right iliac, epigastric, and left lumbar regions were somewhat more prominent than the other parts of the belly. The percussion note was everywhere tympanitic, but differed according as the three above-mentioned prominences were percussed, or if the regions about the umbilicus were selected. Over the former the percussion ring had a peculiar flatness—was, as it were damped and cut short. The inspection of the abdomen and the results of percussion seemed to indicate a colon full of mixed air and solid or fluid matter lying around a distended small intestine. The examination of the rectum gave the following results:—Its anterior wall was less readily pushed before the finger than usual; an elastic, indefinite, resisting something opposing its free movement. Still, even with the man doubled up so as to bring his knees to his chin, no stricture could be detected. These facts led Dr. Duffin to the inference that the obstruction was seated high up in the rectum, or in the sigmoid flexure; but that, if in the latter, it was probably driven downwards by the enormous pressure from above, so as to twist the gut considerably. Except the age and shrivelled condition of the patient, there was nothing to point to cancer. Purgatives had been freely administered prior to the patient's admission; and the house-physician had repeatedly employed enemata with a long tube. Dr. Duffin, therefore, requested Mr. Henry Smith to see the case with him, in order to determine the propriety of operative interference. Mr. Smith concurred as to the general eligibility of the case. It was agreed, however, to give the long-tube enemata a further chance. But by eleven P.M. the same evening things had changed very much for the worse. The man was becoming torpid, with an extremely feeble and irregular pulse. Moreover, he had repeatedly vomited altered blood.

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[*] Intestinal Obstruction. By W. Brinton, M. D. Edited by Dr. Buzzard Churchill and Sons. 1867.

As the service of Mr. Henry Smith could not be procured, the house-surgeon, Mr. Trevor, proceeded to operate on the descending colon by making a transverse incision in the left lumbar region. The gut was readily exposed, and, after being tied to the edges of the wound, was freely opened. A large quantity of gas and fæces at once escaped, and a state of comparative comfort almost directly ensued. Twelve hours after the operation, the pulse was 120 and much fuller; the tongue had a trace of moisture on its edges, and the patient expressed himself as being quite comfortable. Vomiting had ceased, and a fair modicum of brandy and ice had been retained. During the next three days he continued to progress very favorably, his pulse even falling to 96. Moreover, on the 3rd of October he passed a small motion per anum, and this recurred on the next day, but not subsequently. On the fourth day after the operation matters took an unfavorable turn. His pulse and breathing ran up, his skin became hot, delirium set in, and he died on the morning of the 7th inst.

The post-mortem examination was performed by Dr. Kelly. When the abdominal cavity was opened, the descending colon was found adhering to the wall of the left loin, and the finger passed freely through the external wound into the bowel. There had been no escape of fæces internally, nor any general peritonitis. Opposite to the first sacral vertebra, and a little to the left side, an ill-defined mass of thickening connected the sigmoid flexure and the posterior part of the bladder, and tied them to the bone. This adhesion was irregular and soft, and the bowel gave way at this point as it was being removed from the body. When laid open, the gut was found dilated above the seat of stricture. At the site of the adhesion a large ulcer was found, almost circular, about two inches in diameter, with raised, soft, sharply defined edges. This had so narrowed the gut as to only admit the passage of a No. 10 catheter. The external coats were much thickened, but contained no element indicative of cancer. When the bowel was spread out, the stricture proved to be twelve inches removed from the anus. The intestine had thus made a double curve in the pelvis, descending over the ileo-pectineal line to the seat of stricture, then ascending, and subsequently coiling backwards and downwards like the letter C. Hence the opposition to the passage of the long tube; hence also, when the gut above was full, the elastic resistance detected when the rectum was examined. It is also intelligible that when the pressure from above had been relieved by the operation, small quantities of fluid could percolate through the stricture, and so explain all the phenomena observed. The bone opposite the point of adhesion was perfectly sound. Some half-dozen small adhesions existed between different coils of intestine, chiefly between the jejunum and the cæcum; but nowhere did these seem to have any relation to a previous disease of the mucous surface. The immediate cause of death was found to be pneumonia of the lower lobe of the right lung. There was no cancer in any of the viscera.

### TRAUMATIC STRICTURE OF THE URETHRA; TREATMENT BY POTASSA FUSA.

(Under the care of Mr. Henry Smith.)

A Good illustration of the advantages of the use of the caustic potash in those somewhat rare and exceptional cases of stricture of the urethra which will not admit of dilatation is furnished by the following case, which has recently been under treatment at this hospital. The stricture was produced by an injury, and it is generally found that when thus produced strictures are much more difficult to overcome than when they are brought about by the more usual cause, and it is a customary thing for the surgeon to resort to perineal section in such cases.

A fine healthy laboring man, aged twenty-five was admitted August 28th for a very bad stricture of the urethra. It appears that he had been injured by a cartwheel about twelve months previously, and had suffered a laceration of the urethra. On recovery from the immediate effects of this injury stricture in a bad form was found to exist. After having been under treatment in the country he applied to this hospital as an out-patient, under Mr. Smith, who on several occasions attempted to pass catheters, but he could not once succeed in introducing an instrument, and the patient was therefore admitted into the ward.

On admission there was found to be very great thickening all along the course of the urethra in the perineum, and the catheter was arrested at a distance of four inches from the orifice. The patient could only pass urine in drops, and was constantly tormented by the desire to empty his bladder. He was ordered to lie in bed, and to have relays of leeches on his perineum.

For the first week the man suffered very much —his bladder became greatly distended, the urine only came away in drops, and he was in that condition which would have amply justified the operation of puncture of the bladder. Mr. Smith made a careful attempt to introduce a small catheter through the stricture, but he could not succeed even in penetrating the front of the stricture; and as there was so much induration he determined upon perineal section at the point of a catheter if any cutting proceeding were adopted, and in order to facilitate this process he was anxious to destroy, if possible, the front portion of the stricture. Accordingly, on Sept. 19th, he applied caustic potash to the face of the stricture by means of a small portion of the salt being inserted into a little cavity made in the end of a No. 6 wax bougie. The patient did not suffer from any distress, and Mr. Smith applied it again on the 25th, on the 27th, and on the 30th, when the man stated that he could pass his urine somewhat better. Encouraged by this, Mr. Smith applied it again on Oct. 2nd and 4th; and on the 7th, finding that the patient could pass urine in a small stream, and that the thickening in the perineum was less, he introduced a No. 2 silver catheter; and discovering that he could insert it into the stricture for about one inch, he made further attempts, and passed it into the bladder and drew off the urine.

On the 9th he passed the catheter again; on the 11th a No. 3 was introduced; on the 14th No. 4. The patient could now pass urine in a good stream. On the 22nd a No. 5 was easily introduced, and the man was discharged, and desired to come to the hospital once a week to have an instrument passed.

## UNIVERSITY COLLEGE HOSPITAL.

### CASE OF PUNCTURED ANEURISM OF THE COMMON FEMORAL ARTERY; THE SAC OPENED, AND THE ARTERY TIED ABOVE AND BELOW THE ANEURISM; FATAL RESULT FROM SECONDARY HÆMORRHAGE.

(Under the care of Mr. Christopher Heath.)

The mistaking of an aneurism for an abscess is an error by no means without precedent; and though we may fondly hope to have heard of the last case of the kind, in all probability the same error will be committed from time to time, more from inattention to, than from actual ignorance of, the distinctions between the two affections. In the following interesting case, the practitioner who attended the patient fortunately had made only a puncture, and not an incision, into the sac, and consequently was able to arrest the hæmorrhage by pressure until the man was brought to the hospital. Had it happened otherwise, the results might have been immediately disastrous. The operation which was performed was that brought prominently before the profession by Mr. Syme, who practised it in a case of axillary and in one of iliac aneurism with success, and is to some extent a return to the practice of the ancients. The position of the aneurism was fortunately such that the aorta could be conveniently and effectually compressed, and the principal difficulty that was experienced by the operator was in isolating the artery through the sac of the aneurism, which overlapped it, and was incorporated with its coats. The suggestion of Mr. Erichsen, to pass a probe into the artery, very much facilitated this part of the operation, and its adoption under similar circumstances would save the operator both time and trouble. It is interesting to note that the fatal secondary hæmorrhage was from the lower end of the vessel, which, though occluded at the time of the operation, became patent when the ligature began to ulcerate through the included tissues.

For the notes of the case we are indebted to Mr. E. Shoppee, house-surgeon.

Thomas S——, aged twenty-nine, admitted Sept. 11th. He is a slater by trade, and states he has until lately enjoyed good health. For the last eight months he has noticed a swelling in the upper part of the left thigh. At first it was as big as a walnut, very painful, and seemed to throb distinctly. He cannot remember ever straining himself in this situation. For the last two or three months he has been attended by a surgeon, who ordered him poultices to the part, and on the morning of his admission, supposing it to contain matter, punctured it with a lancet. Immediately the puncture was made, a jet of blood spurted out, about half a pint escaping, further bleeding being prevented by pressure with the fingers and a compress. The patient was brought at once to the hospital.

On admission, a tumour was found about the size of the clinched fist, situate on the left side immediately below Poupart's ligament. It pulsated freely. The skin covering it was of a dark, bluish-brown color, and its conical top presented the mark of a puncture, which was not bleeding. The tumour appeared to encroach upon Poupart's ligament, and to extend some little distance above it. Patient was somewhat faint and excited, but became calm after being in bed a short time.

Mr. Heath (then in charge of Mr. Erichsen's wards) saw the man shortly after he was brought in, and considered that it would be necessary to tie the external iliac artery. Mr. Erichsen, whose attendance had been requested, arrived about two hours after the receipt of the injury, and, upon careful examination, concluded that it would be very difficult to reach the external iliac, and that it would be better (considering that the aneurism had already been opened to lay open the sac completely, and tie the two ends of the artery above and below the aperture.

The patient was carried into the operating theatre, and, having been put under the influence of chloroform, Lister's abdominal tourniquet was applied by Mr. Berkeley Hill to the abdominal aorta. Mr. Heath then made a small incision into the upper part of the sac, and introduced his left forefinger. Having discovered the aperture in the artery, he thrust his finger into it as far as possible, and then laid open the sac upon a director. The clots having been rapidly cleared out, it was found that the tourniquet did not completely command the artery, and a gush of arterial blood took place. Mr. Heath now scratched cautiously with a scalpel through the sac of the aneurism on each side of his finger, and, with Mr. Erichsen's assistance, passed a threaded needle, with the view of commanding the femoral. This was found not to be effective; a second ligature was therefore passed and tied, which apparently controlled the bleeding. The lower end of the artery was now sought for and tied in the same manner, excepting that a sharp-pointed needle was used, which gave rise to some venous hæmorrhage in its passage. The sac was now sponged out. The arterial aperture was found to be oval in shape, an inch in length, rounded, and smooth at the edges. In consequence of continued oozing from the inner side of the sac, a sharp-pointed needle was passed in that direction, and the ligature tied. All hæmorrhage having ceased, the tourniquet was relaxed, when a tremendous gush of blood took place, showing that the artery was not commanded by the ligatures. Mr. Erichsen now suggested passing a probe through the upper aperture in the sac to ascertain if the artery was included in the ligature, which proved not to be the case. With the probe in the vessel, it became much easier to isolate it, which Mr. Heath accordingly did, and passed a ligature round it. All hæmorrhage now ceased, and did not return on removing the tourniquet. At the close of the operation, the patient's pulse was very weak, and the affected limb felt cold.—Four P.M.: The patient was removed to the ward, and the clamp (Lister's) loosely applied; the limb was enveloped in cotton-wool, and a hot-water bottle placed in the bed, but not in contact with either foot; pulse 108. Ordered, twenty minims of tincture of opium in half an ounce of gin; milk diet.—Eight P.M.: Pulse 86; no bleeding has occurred, and the patient appears to have rallied; the temperature of the limb notably increased.—Ten P.M: Pulse 96, increased in strength. Lister's clamp carefully removed and kept at the bedside. The gin and opium repeated.

Sept. 12th.—Four A.M.: Repeat draught. Patient fed with Liebig's extract and milk.—Nine A.M.: Mr. Heath visited the patient, who had slept for three hours during the night. At this time the pulse was 120, weak and small. The temperature of the lower limb on the injured side (taken between the toes) was 102 2–5°, while on the opposite side at the corresponding situation it was 103 3–5°. The lint that had been placed over the wound at the end of the operation was allowed to remain undisturbed, and warm-water dressing applied over it. Opium ordered to be discontinued; and an effervescing draught to be given every four hours.—Seven P.M.: Through the day he has been somewhat restless, wanting to change his position in bed very often. Has taken a considerable quantity of milk and beef tea, as well as half an ounce of gin every six hours. Temperature of left axilla, 104 1–5°; left foot, 104 1–5°; right foot, 104 3–5°.

13th.—Continues to progress favorably. An offensive discharge escapes from the wound; water-dressing applied, and a spica bandage over this. Appetite improving; tongue clean. Temperature of injured side at the foot, 101 1–5°; sound side, 102 2–5°.

14th.—Patient in every respect appears to be going on well. Extra diet and beer allowed.

15th.—The wound continues to discharge freely but the surface is beginning to clean and the margins to granulate. Mr. Heath ordered it to be washed with carbolic acid and water, and dressed with "red wash." Patient complains of numbness extending from the wound down the front of the thigh.

17th.—Remains in the same state; expresses himself as feeling stronger. Temperature of both lower limbs equal (89 4–5°).

19th.—The patient looks cheerful, and says he feels well. Pulse 100; wound suppurating profusely, discharge offensive; dressed with carbolic acid (one part to sixteen of water.)

20th.—The house-surgeon was summoned to the bedside of the patient this morning at six A.M., and on examination found that the spica bandage was wet from recent hæmorrhage, and, besides, that blood in small quantities was dripping down on to the bedclothes. With the assistance of his fellow house-surgeon (Lister's clamp having been applied) a pad of lint was placed over the situation of the wound without disturbing the dressings of the part, and, by means of a spica bandage, was bound down firmly. This arrested all further hæmorrhage. Ten A. M.: The patient looks comfortable and quiet; pulse 92. Two P.M.: Mr. Heath exposed the wound, when some bleeding was observed at its lower part. This was readily controlled by finger pressure, and did not recur on its removal. All the ligatures came away with one exception, and this still remained attached to the distal end. Some lint, dipped in perchloride of iron, was applied after the wound had been cleansed with carbolic acid, and the part bandaged over.

21st.—Some slight hæmorrhage again at five o'clock this morning: two ounces of blood appeared to have saturated the dressings rather suddenly. Lister's clamp again applied, and some pieces of lint inserted beneath the spica bandage in order to obtain an increase of pressure.—The bleeding then ceased for some time; but at eight o'clock a further discharge took place. This, however, soon stopped.—Nine A. M.: Mr. Heath had the whole of the dressing removed, the wound sponged out, and as no hæmorrage then took place, ordered lint, soaked in perchloride of iron, to be applied again. Pulse 108, small and easily compressible. The patient looks anxious; has had several loose motions.—Two P. M.: Pulse 120, wiry; countenance pallid and quiet; says he feels very weak. No more hæmorrhage.

22nd.—At two and four A. M. slight oozings took place, which ceased on pressure being applied in the course of the femoral artery below the wound. At ten o'clock some more bleeding was noticed, the blood trickling down in two small streams from under the bandage; pressure effected its stoppage. The use of the bed-pan seemed to have induced the last attack. At eleven A. M. Mr. Berkeley Hill (in Mr. Heath's absence from town) ordered the wound to be exposed, having previously applied Lister's clamp over the line of the common iliac, and Signoroni's tourniquet over the femoral. A gush of arterial blood followed the withdrawal of the dressings. The surgeon tried compression with his fingers, but the bleeding seemed to proceed from several points in the distal end of the sac. The tourniquet applied over the femoral partially commanded it. A threaded aneurism needle was then passed under the artery a little below the bleeding point, and a double ligature applied. On examining the ligature that had been on the distal end at the first operation, the noose was found large enough to admit two fingers, and therefore did not efficiently control the vessel. Hæmorrhage had now ceased from the main artery; several minute ones were still oozing, but lint dipped in iron stopped their bleeding. The tissues around were very much infiltrated and rotten, so that before applying the ligature a cut was made downwards with a blunt-pointed bistoury in the direction of the femoral, which allowed the vessel to be well secured. Before the operation the limb was rather œdematous, and the temperature to the touch lower. The quantity of blood lost was about twelve ounces; the wound was allowed to remain open, and brandy administered frequently to the patient. After the operation he gradually became worse, his pulse was imperceptible at the wrist, and at a quarter to one the man died.

*Autopsy, Sept. 24th.*—On opening the abdomen, the left external iliac was found pervious, but a little discolored immediately above Poupart's ligament. It contained, above the origin of the epigastric, a small adherent clot, which was not large enough to fill the vessel, but allowed a stream of water to pass. The femoral was found divided by the ligature close below Poupart's ligament, and loosely connected with the surrounding tissues, which were in a sloughy condition. The artery was accidentally separated from them, and found to be pervious, but probably the occluded end was lost in the slough. A small recent clot was found just within the mouth of the vessel. In the artery below this point, the original opening of the aneurism, together with part of the sac, were visible. Below this again, and immediately above the origin of the profunda, the artery was found to be included in the ligature applied by Mr. Hill, as was also the vein. The vein below this point was filled with recent firm coagulum. Above this ligature the common femoral was incorporated with the sac, but not occluded, though containing a clot. In the vein below the ligature there was a white fibrinous clot, but none in the artery. Pus was found along the sheath of the iliac vessels for some distance, and amongst the muscles of the thigh as low down as the middle third. The internal organs appeared healthy, excepting the left kidney, which was much congested. There was also atheromatous deposit at the commencement of the aorta.

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## WESTMINSTER HOSPITAL

### A CASE OF INJURY TO THE HEAD.

(Under the care of Mr. Holthouse.)

The following case will be of still more value when its sequel comes to be known. The patient, however, has disappeared, and Mr. Holthouse has failed, on recent injury, to learn anything of his whereabouts. As it is, however, the history is a very interesting one, and not the less so that there is considerable difficulty in explaining the cause of the peculiar symptoms with which the man was affected. We saw him on the day after his admission into the hospital. His speech, which closely resembled that of intoxication, was so indistinct that it was not easy to understand his meaning; but what he did say was correct enough in sense. His condition seemed to be one of ataxy of articulation rather than of paralysis, and he had no aphasia. As regards the nature of the lesion caused by the fall, the length of time which intervened between the accident and the appearance of symptoms would tend to negative the idea of these being due to hæmorrhage. That effusion of some kind or other took place about the base of the brain posteriorly and the medulla oblongata, would appear pretty certain. What was the nature of this effusion? It does not seem that there were very decided signs of inflammatory action. It is possible, however, that an injury to the brain surface may have been followed by very localised inflammation with its consequent effusion of lymph. Or, failing this, it is conceivable that a small serous exudation may have taken place consequent upon the injury. In any case, the effused liquid was probably under the visceral arachnoid, and its pressure upon the nervous substance gave rise to phenomena very similar to those which are produced when, as in locomotor ataxy, grey degeneration of the posterior columns of the cord has taken place. In the present case, however, there is a fair expectation, we should think, that the lesion may be only of a passing character.

Nov. 3rd, 1866.—John F——, aged thirty, tailor, fell down the steps of the Duke of York's column, on the Thursday week previously (Oct. 25th), while in a state of intoxication, striking the back of his head and producing a slight laceration of the scalp. He went to work the following two days, but on Sunday began to complain of pain in the head and back, and lay in bed till the afternoon, when he was aroused by one of his mates and taken out for a walk. On his return three hours afterwards, he felt worse, had more pain all down the back and over the head, radiating from behind forwards, and was very cold. He had a rigor the same evening. He applied the following day at the Westminster Hospital for some medicine, which afforded no relief. On his return home he went to bed, where he has remained to the present time. Two days ago, his wife perceived that he spoke indistinctly and had a difficulty in swallowing, and these symptoms continue.

*Present appearances.*—Face pallid; head somewhat drawn back; general surface of body rather cold, and the patient feels cold, but his forehead is hot; tongue moist, covered with a whitish fur; bowels acted yesterday; passes urine naturally; pulse small, rather feeble, 92. On walking, which he can only do with assistance, he throws his feet out with a jerk, and there is a want of co-ordination in his movements. On offering him a mug with some water, he was not able to guide his hand to the handle, but clutched above it; and on drinking, a fit of coughing was brought on, evidently from imperfect closure of the glottis during deglutition. Intellectual faculties unimpaired. Pupils of medium size; act under variations of light; no strabismus or double vision.

The patient was ordered a five-grain powder of mercury with chalk every four hours, and a blister (2in. by 4in.) to the back of the neck, to be kept open with sabine ointment; application of cold to forehead, and hot bottles to feet; perfect quiet enjoined. He afterwards expressed himself as feeling a little better; had some tea and bread-and-butter, and also beef-tea, which he swallowed without any choking; and he slightly dozed. The surface of the body was warm. There had been no action of the bowels since admission; he had taken two powders.

Nov. 4th.—Has passed a fair night, considering the blister, which has risen well; and he complains now of difficulty in micturating (strangury?). The surface of the body and extremities are of normal temperature and moist, and the forehead is not hotter than the rest of the body; there is a persistant wrinkle above the nose; the breath is fetid, the tongue foul, and the speech as indistinct as before, but he has no headache; some flatulence, but no action of the bowels; pulse 90, small and feeble; wet rags are still kept on the forehead.

5th.—Slept at intervals throughout the night, and has no pain anywhere except in the situation of the blister; the breath is decidedly mercurial, and the gums tender and swollen; the bowels have acted three times spontaneously; speech still indistinct, but swallows well if careful; pulse 92, feeble; general surface of the body warm and perspiring.

6th.—Complains only of his mouth, and says if it were not for that he should feel well. Speech is, however, still indistinct, and he is a little uncertain about his swallowing; wrinkle disappeared from forehead; pulse 90, stronger.

7th.—Passed a restless night, complaining of pain in the head and throat; at present in a profuse perspiration, but says he has no pain in the head; complains only of the blister and soreness of the mouth; breath still fetid and tongue coated; wrinkle on forehead returned; is able to take nothing but liquid nourishment, and it occasionally excites coughing; pulse 80, with some power; the bowels have not acted the last thirty-six hours, but he passes urine now without difficulty; speech less indistinct.

8th.—Slept well the early part of last night, but wakeful towards the morning. Complains of his head being heavy, as if he could not raise it from the pillow, and headache. Articulation more distinct; swallows tolerably well; mouth still sore; tongue white; breath fetid; no action of bowels since last report; pulse 76. Ordered half an ounce of castor oil.

10th.—General condition improved; looks better; complains only of head being heavy, and some pain at back of neck and down the back. Has considerable power of grasping, and does not miss the object he grasps at. Bowels have acted freely; pulse 84; intermittent six times in the minute.

14th.—On the 12th, finding the pulse very feeble, four ounces of brandy and two eggs were ordered, since which the pulse has increased in power, and does not intermit, 76. Still complains of heaviness and pain in the head, and the forehead is somewhat hot; but the improvement in speech and deglutition continue. Ordered one ounce of gentian and senna mixture twice a day.

22nd.—The gentian and senna mixture gripes him, but produces no action of the bowels. In other respects he is well, except feeling weak, and his speech being still indistinct. He has perfect control over the movements of the hands and legs, walking well, though feebly. Mutton-chop ordered.

24th.—Is slowly improving, though his speech is somewhat indistinct. Complains of soreness in his head, and a little stiffness at the back of the neck; tongue clean; appetite good; bowels still rather confined; pulse still feeble.

28th.—Soreness of the head and stiffness at the back of the neck which he complained of a few days ago have disappeared, and he is regaining strength; but neither speech nor deglutition is so perfect as before the accident, and occasionally he bites his tongue. Has been up and about since the 22nd.

Dec. 5th.—Discharged at his own request, feeling well, though not as before the accident. There is a very slow yet decided improvement taking place; and he is to report himself once a week. He still speaks imperfectly, with a sort of stammer and thickness of speech, like one intoxicated; and though he walks very well, he can run only a few yards, the act of running producing a sensation as if he should fall forwards.

Jan. 9th, 1867.—Presented himself at the hospital, looking and feeling well; but speech is as imperfect as when he was discharged, exactly like that of intoxication. He can now walk and run without inconvenience, and masticate and swallow without the least difficulty; but when he is at work under the gas in a heated room he feels, he says, rather light in the head. A blister to be applied behind the ear.

26th.—The blister acted well, but there is no perceptible improvement in his speech. On questioning him about his swallowing, he says if he eats hurriedly he chokes. Croton liniment behind the ear.

Feb. 10th.—Counter-irritation has been kept up behind the ear to the present time; but there is no appreciable alteration in his condition as regards speech and deglutition: the latter must still be performed with a little care, and not hurriedly; and the former is still the speech of intoxication, though he can pronounce every letter of the alphabet separately without fault. As regards the action of the muscles individually concerned in the above acts, there is no perceptible lack of power or nutrition. The tongue is equally plump on both sides, and it can be thrust out or drawn in, or directed to any point with equal precision; and so also with the lips and cheeks.

## GUY'S HOSPITAL.

### CASE OF ERYSIPELAS, FOLLOWED BY GANGRENE; SLIGHT NECROSIS OF FIBULA; EMBOLISM; SLOUGHING OF LUNG.

(Under the care of Mr. Birkett.)

The following case is one of great interest as an example of the conveyance of gangrenous matter by tangible means. Dr. Moxon, by whom the autopsy was made, and who has obliged us with an account of the case, thinks it cannot be held that embolism was the cause of gangrene in the lungs. The mere occlusion of the artery would not of itself be a sufficient cause; but the cause of the gangrene must be sought in the existence of gangrene in the leg. Examination of the vessels of this limb showed it to be nearly certain that the clot had been formed as usual in the region of the circumflex and profunda femoral veins, and then had projected into and been broken off in the chief femoral vein. Examination of the popliteal and other veins showed the absence of any considerable-sized plug such as could have stopped up the pulmonary artery in the way described. In this case, then, it is reasonable to believe that the general condition produced by the presence of gangrene, and perhaps more particularly by the circulation of the juices from the gangrene, so predisposed the lung and all else that the emboli excited the part it affected to complete gangrene. It should not be overlooked that the vein in which the thrombosis occurred was permanently exposed to the blood direct from the gangrenous part, so that the dead clot in it would be very likely to take up to a disproportionate extent the bad juices from the sphacelus.

The patient, a man affected with ulcer of the leg, had been seized with pain in the limb, succeeded by erysipelas. His dresser, Mr. J. A. Sharp, gives the following report:—

On the day of admission (Aug. 2nd) the man had been put into Lazarus ward, but, as he was suffering from hospital gangrene, which had attacked the ulcer of the leg, he was at once transferred to Mark ward. On Aug. 9th, the ulcer having assumed a more healthy appearance, he was re-transferred to Lazarus ward. The treatment while in Mark ward consisted in twenty drops of muriated tincture of iron in quinine mixture three times a day, with six ounces of wine, two pints of porter, and full diet. The ulcer was about the middle of the leg on the outer side, seven or eight inches long, and varied from half an inch to two inches wide; its edges were raised, indurated, and surrounded by a blush of inflammation.

Aug. 13th.—Ordered lead lotion, and twenty drops of muriated tincture of iron three times a day.

20th.—The edges continuing raised and indurated, they were ordered to be scarified.

Sept. 5th.—Edges more healthy, but still raised and indurated; rescarified.

9th.—Since the second scarification the ulcer had again taken on a sloughing action; the superficial area of the ulcer was doubled, and the surface covered with a thick, tough, blackish, fetid slough, and the skin around, for the distance of three inches, was inflamed, swollen, and indurated. Patient was feverish; pulse quick and full; little inclination for food. Ordered the tincture of iron as before; also poultices to the leg, which was raised on a pillow.

14th.—The sloughing progressing. The patient was removed to Mark ward.

21st.—Sloughing progressing towards the back of the leg.

Oct. 17th.—Since last report the sloughing has gone on uninterruptedly. The muscles of the calf and outer side of the leg external to the tibia are laid bare from two inches below the knee to the ankle. This morning there was hæmorrhage from the back of the leg, about a pint of blood being lost. A tourniquet was placed on the femoral artery in the upper part of the thigh, which stopped further bleeding. A few hours after, when seen by Mr. Birkett, the tourniquet was removed; no fresh bleeding ensued, and it was left off altogether. Mr. Birkett thought it probable that the posterior tibial artery had sloughed through, and ordered that, if the bleeding recommenced, the artery should be found and ligatured at the bleeding part. The patient was taking twelve ounces of brandy, and as much milk and beef-tea as possible.

19th.—No further bleeding had occurred.

29th.—During the last ten days he has remained in about the same state, the sloughing progressing up the leg. For the last fortnight he seemed moribund. He was fed with as much brandy, milk, eggs, beef-tea, &c., as it is possible to get him to take.

Nov. 11th.—Improving; takes more nourishment; surface clear of sloughs and granulating, is now being dressed with carbolic acid and linseed oil.

13th.—Although the diseased part was taking a healthy action, the patient was so much exhausted that he died to-day.

On post-mortem inspection, the following appearances were observed. The rigor mortis was moderate. The body was about middle height, slightly built, very spare, even to wasting. The complexion sallow and pale. No suffusion. Traces of dropsy about the ankles. On the right leg was a great open space, in which the fibula and deep-seated tissues were exposed, brown and sloughing. The tibia was nowhere denuded, but the fibula had, at one spot in particular, small superficial sequestra. There were no nodes upon the head: thick membrane. The brain was only superficially examined; it appeared to be healthy. The right lung was attached by old adhesion at the hinder and lower part. The left lung was in a state of acute pleurisy over the lower four-fifths, coated with plastic lymph, but no liquid present; the lymph was scarcely removable. The left lung had its lower lobe in a state of early inflammation, but it did not sink in water. At one spot in the lower lobe was a plum-sized patch of old sclerosis; the tubes in this were full of pus; the pleura was depressed over this spot. The upper lobe was thus affected. An embolus was on the principle bifurcation of the left pulmonary artery, but went so into the upper branch of this as to occlude its lower and greater division entirely. The part of lung which this artery supplies was gangrenous. The embolus was very closely adherent to the artery, and was quite decolorised. The mediastinum contained several large soft glands. There was not any hypertrophy or dilatation of the heart. There was one "milk patch" on the pericardium. The right side of the heart contained a little black blood, with a small fibrinous clot. The left side contained a little blackish blood. The mitral valve was somewhat thickened. The aortic valves were rather thick and stiff for some distance from their attachments. There was a moderate degree of superficial fatty degeneration of the great vessels. The right femoral vein had an ante-mortem clot, invading the femoral vein from the internal circumflex vein and the left profunda femoral vein. There were numerous ante-mortem clots in the prostatic plexus. The popliteal vein had a small clot behind a valve. The anterior and posterior tibial veins were free. The orifice of the bile-duct in the duodenum was quite free, though the elevation on which it is seated was rather prominent. The jejunum was thickened, and more prominent than usual; yet, on section, nothing definite was observed to account for the uncommon distension of the gall-bladder. The large intestine was full of black tenacious fæcal matter. The form of the liver was natural, except that there was a deep notch where the pressure of the distended gall-bladder had caused atrophy. This condition proved the distension of the cyst to be of very long standing. The tissue was natural. The gall-bladder was six inches long, by three in diameter, enormously distended by bright, clear, amber bile, which on pressure on the cyst would spirt freely into the duodenum; this latter contained plenty of bile. The spleen weighed six ounces. In its substance, but not coming to the surface, was a circumscribed pale patch, with a dark margin, probably "embolic"; perhaps it had come from a pulmonary vein; these at least had thrombi in the gangrenous part. The kidney was of large size, and rather coarse in appearance, but practically healthy. At the neck of the bladder were some small prostatic concretions. The right ulna had three considerable nodes on the cutaneous surface. The skin was adherent over two of these, and had been ulcerated. No nodes were present on the tibia, and there was no sign of gout in the joints.

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## ST. GEORGE'S HOSPITAL.

### A CASE OF VESICO-VAGINAL FISTULA.

(Under the care of Mr. Pollock.)

The subjoined cases may be conveniently associated as examples of successful surgical interference in very distressing conditions. In one the lesion resulted from pressure during confinement; in the other, from a fall.

The notes of the following case are by Mr. E. C. Ring, late surgical registrar.

L. N——, aged thirty-one, married, was admitted on the 20th of February last with a fistulous opening between the vagina and bladder, produced during her first confinement, which had taken place ten weeks previously. She was quite unable to retain the urine, which was constantly dribbling away. Perforating the bladder and anterior wall of the vagina was an opening nearly large enough to admit two fingers. The opening was almost circular, situated on the right side of the anterior wall of the vagina, and within an inch and a half of the orifice of the urethra. There was an extensive, contracted, and unyielding cicatrix, running three parts across the anterior wall of the vagina, from which it was evident that this had sloughed more extensively than the bladder, which had only been implicated to a small extent.

On the 28th of February, the bowels having been cleared by a dose of castor oil and an enema, chloroform was administered. The vagina was opened by the duck-billed speculum, the cicatrix all round the fistula was freed from its deep attachments, and the edges of the orifice in the vaginal wall were pared and drawn together with four silver sutures. These were passed into the vaginal wall, and brought through the raw edge of the fistula on one side, and introduced into the raw edge on the opposite side, and again being brought into the vagina, the ends of each suture were twisted together. A catheter was then passed, and retained in the bladder. To the catheter was attached a tube and bag to receive the urine. The vagina was thoroughly cleared of all coagula, and no dressing of any kind was introduced: one great principle in the treatment of these cases after operation being to keep the vagina free from any irritation or disturbance; and, by allowing the walls of the vagina to assume their natural condition, to avoid any pressure on the wound or traction on its edges.

She suffered no pain after the operation, and was ordered a grain of opium twice a day in the form of a pill. This was omitted on the 8th March, and on the 10th the bowels acted for the first time, twelve days after the operation. On the 11th the catheter was removed, but she was unable to pass urine for the next few days, and it was drawn off. On the 23rd union was found to be perfect, and the sutures were removed. She left the hospital on the 25th perfectly well, having complete command over the bladder.

### A CASE OF RECTO-VAGINAL FISTULA AND RUPTURED PERINEUM.

(Under the care of Mr. Pollock.)

For the notes of this case we are indebted to Mr. W. Leigh, surgical registrar.

Elizabeth R——, aged eight years, was admitted into hospital on July 10th, 1867. Two years ago last March she was playing on a stool, which slipped over, and she fell astride it, the leg striking her in the "fork." She was in an hospital four months, and noticed that the fæces escaped at times into the vagina. This only occurred when the bowels were relaxed, and then to a small extent; but she was told it would get worse, and was anxious that something should be done.

On admission, there was an opening from the vagina into the rectum about the size of a large pea; it was situated about half an inch from the anus. The opening of the vagina extended through the perineum towards the anus, leaving only a bridge about one-third of an inch wide between it and the anus.

July 11th.—The child having been put under the influence of chloroform, the edges of the opening were freely pared (through the vagina), and then brought together with three silver sutures (introduced from below upwards), which were cut short. The laceration in the perineum was not interfered with, being left for a subsequent operation, if necessary. A catheter was left in the bladder, to prevent the urine coming in contact with the wound.

12th.—The catheter very soon slipped out, and was not replaced. The bowels have acted, and she has passed urine. She had no unfavorable symptoms.

19th.—Put under the influence of chloroform; all sutures that could be seen removed, and a small opening the size of a pin's head still found to exist.

25th.—Put under the influence of chloroform, and one suture that had been overlooked removed. There is still an opening the size of a pin's head, through which fæces escape into the vagina.

Aug. 22nd.—Under chloroform, the edges of the opening, which was the same size as on last date, were touched freely with lunar caustic.

Sept. 12th.—The opening continues the same. Under the influence of chloroform, Mr. Pollock pared the edges as before, and brought them together with three silver sutures.

19th.—Mr. Pollock removed the silver sutures which had been introduced last week, and the opening seemed to be entirely closed.

Oct. 2nd.—An examination subsequently showed that there was still an opening the size of a pin-hole, but as this might close by contraction, or, if not, was not likely to cause her any inconvenience, she was discharged.

## LONDON HOSPITAL.

### CASES SHOWING THE POISONOUS EFFECT, AFTER OPERATION, OF PENT-UP PUS.

(Under the care of Mr. Maunder.

Some useful hints are contained in the following cases, which have recently occurred at the above hospital.

Case 1.—W. C——, aged twenty-six, a healthy-looking man, was submitted to herniotomy for inguinal rupture. The stricture was situated at the neck of the sac, and it was therefore necessary to open the latter and sever the constriction before reduction of the contents could be effected. An incision only large enough to admit the point of the index-finger was made just below the stricture, and the latter readily divided. The hernia was a large one, consisting of intestine and omentum, and a good deal of sanguineous fluid was in the sac. The whole contents of the sac and also the greater part of the fluid were passed back into the abdomen, having been touched only by the point of the finger. Symptoms of peritonitis, restricted to the region in which the returned hernia might be expected to lie, set in, but were readily subdued by leeches and calomel-and-opium. On the day subsequent to the operation the scrotum assumed almost the size it had before the operation, but without symptoms of strangulation, and this swelling was thought to be due to an accumulation of serous fluid; possibly also a portion of omentum might have redescended.

The peritonitis having been checked, the patient progressed perfectly satisfactorily for some days, when the scrotum became tender, associated with some constitutional disturbance. In the course of a day or two Mr. Maunder was informed, on reaching the hospital, that his hernia patient was very ill; and on visiting him he found him semi-conscious, pale, with clammy skin and weak fluttering pulse, but sensible to pain when the scrotum was handled. This organ was now œdematous, red, and very elastic over the region of the sac. It doubtless contained pus, and an incision gave exit to a quantity of matter having a most offensive odor. For a day or two both before and after the evacuation of this abscess the patient suffered from diarrhœa; but twenty-four hours after the incision he had thoroughly rallied and was out of danger.

CASE 2.—A man aged seventy was brought to the hospital on October 2nd, from Chigwell, Essex, with a femoral hernia, strangulated forty-eight hours. He was very feeble indeed, with a dry, brown tongue. Herniotomy was performed under chloroform, and the contents of the sac returned without opening the latter. A grain of opium was given at once, and a little tonic to be administered occasionally. Seven hours after operation the patient vomited, and there was some amount of tympanitis; still the man expressed himself relieved by the operation. Ordered a little hot brandy-and-water and warm water enema. In the course of the subsequent few hours, flatus passed per annum and sickness ceased,—For forty-eight hours more he progressed favorably, taking beef-tea and other nourishment tolerably well; but now he is not so well, having loose bowels and lying semi-conscious. On examining the wound, the parts around are found swelled and tender, and on removing the sutures some fetid pus escaped. Thirty hours subsequent to the escape of the matter he was greatly improved and there is good hope of his recovery.

October 13th.—Convalescent.

Besides these two cases now in hospital, Mr. Maunder tells us that a patient of his, who had been submitted to lithotomy last year in private, and from whom a large stone had been extracted, doubtless with great bruising and tearing of soft parts, appeared to be on the point of death a few days after the operation. He was semi-conscious, almost pulseless, with a cold, clammy surface. Suddenly, an abscess which had formed, no doubt between the rectum and bladder, burst, discharging a very large quantity of offensive pus. From that moment the patient rallied, and was in due time out about his business as usual.

These cases show the necessity of searching carefully, especially in operations where the skin wound heals quickly, for the presence of concealed pus. Its injurious influence can scarcely be exaggerated.

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## CHARING-CROSS HOSPITAL.

### INJURY TO THE LIVER FROM A FRACTURED RIB ; PERITONITIS; RECOVERY.

(Under the care of Mr. CANTON.)

THE following is a highly interesting case of an injury to the liver, the exact nature of which, however, the patient's recovery leaves in doubt. The notes were obligingly furnished to us by Mr. A. H. Buck, senior house-surgeon.

Sidney F——, aged twenty-three years, a comic singer, on returning home on September the 22nd, was thrown from a cart. When brought to the hospital, he was in a state of partial intoxication. On examination, it was found that he had fractured the ninth rib on the right side, at about the middle of the bone. He was at once put to bed, and strapping applied in the usual manner. He passed a restless, night, next morning complain- of headache, pain in the side rather below the seat of injury; his tongue loaded, pulse full and bounding. He was ordered a dose of house medicine, which was followed by a dose of castor oil: this, however did not produce any satisfactory result. General pyrexia came on; his abdomen became tense, and very tender to the touch; pulse small and quick; tongue dry; skin hot and dry; eyes yellow; knees drawn up; urine scanty; bowels torpid. The symptoms of peritonitis were confined, at first, to the seat of injury and liver, indicating that there were some lesion of the liver, probably caused by the fractured portions of bone having grazed or otherwise injured that organ. He was ordered effervescing saline with hydrocyanic acid, constant fomentations to the abdomen, calomel with opium every four hours, barley-water with lemon-juice as a drink. As the tympanitis and effusion became more distinct, calomel with opium was given every two hours.

Tenderness had become more general by the 26th. His breathing was short, and altogether thoracic; pulse small, and about 120. He had obstinate hiccough; tongue dry and brown; in fact, his symptoms were assuming the form of a low class of peritonitis. The vomiting was very persistent, large quantities of billious matter being ejected, and constant liquid evacuations taking place from the bowels. Five grains of camphor were added to the calomel and opium, and the patient was put upon a mixture containing a grain of musk, with ammonia, every four hours, and champagne, which produced in a short time very satisfactory results in relieving the constant vomiting. As the abdomen was still very tense, signs of fluid persistent, and the breathing still short, mild mercurial ointment was gently rubbed into the abdomen, and the same spread upon lint and applied to it. This treatment was continued for some days, dur- which time the patient varied much.

By the 2nd of October, vomiting had almost ceased, and the diarrhœa somewhat abated. Pulse about 112 to 120, and the hiccough had entirely subsided. Having by this time become somewhat under the influence of the calomel, the pills were taken only three times a day. His countenance now began to lose the anxious expression that it wore a few days previously.

On the 15th he had a good night. His abdomen was less tympanitic, and his breathing easier. His eyes are becoming less jaundiced. The fluid contained in the abdomen is diminishing. Has continued the same treatment, with the exception that he is taking the pills twice a day, and has discontinued the mixture and champagne.

By the 8th he was able to take some fried sole, since which date he has gradually been gaining strength; he has been able to lie upon the outside of the bed dressed. His pulse is about 90; tongue clean and moist; all jaundice has disappeared; his abdomen has assumed its natural size and feeling. The mercurial application is still continued, but, instead of opium and calomel, he is taking grey powder with quinine three times a day, with the object of not too suddenly stopping the action of the mercury, and with the view also of preventing adhesions, and promoting absorption of any fluid that may be yet contained in the cavity of the abdomen. There is no pain at the seat of injury; his complexion is clear; his breathing easy and normal; pulse regular; tongue clean. He is now evidently making a slow but sure recovery.

## "DREADNOUGHT" HOSPITAL-SHIP.

### THORACIC ANEURISM, BURSTING INTO THE COATS OF THE ŒSOPHAGUS.

(Under the care of Dr. Ward.)

The following case has lately occurred in the medical practice of the above hospital, and Mr. Harry Leach, the resident medical officer, has been kind enough to give us notes of it. Many patients are admitted here suffering from aneurism, nearly all of whom furnish some definite history of injury as the exciting cause, and the majority proving fatal from secondary bronchitis. The case here given is noteworthy on account of (1) the absence of auscultatory helps to diagnosis, (2) the existence of intense emphysema, and (3) the peculiar direction taken by the exuded blood.

William S——, able seaman, aged forty-eight, was admitted on the 15th of May, with pains in the lumbar region of three months' duration, and stethoscopic signs indicative only of slight bronchitis, the patient having suffered from cough with mucous expectoration two or three days previous to admission. The symptoms of active disease were altogether negative; no dysphœa or abnormal sounds other than bronchitic, nothing in the urine to indicate renal complications, and no œdema or ascites. Emphysema with extreme dyspnœa commenced twelve days after admission, with intense pain in the dorsal region, difficult deglutition, and almost constant vomiting. After the lapse of forty-eight hours the emphysema diminished, but there was little, if any, intermission of the other symptoms. Slight hæmoptysis subsequently occurred, and the man, after alternating for two days longer between fits of agonising pain and intervals of stupor, died on the 1st of June.

*Autopsy, thirty-six hours after death.*—A large aneurism was discovered attached to, and causing caries of, the fifth, sixth, and seventh dorsal vertebræ. As there appeared to be some communication between the aneurism and the œsophagus, both were removed, in company with the heart, lungs, and stomach. The sac of the aneurism communicated with the aorta about two inches below the junction of the left subclavian artery. A second opening was found towards the left and posterior part of the aneurismal sac, communicating with the muscular coat of the œsophagus. Blood was extravasated between the striæ of this coat, and between the latter and the serous coat, so as to surround the œsophageal canal, and thus form a sort of double tube. This condition extended downwards as far as the upper opening of the stomach, and blood was found to have ramified along the anterior and posterior surfaces of that viscus, separating its coats to some considerable extent about the lesser curve. The blood found here, as also that in the coats of the œsophagus, was, as its odor indicated, much decomposed. There were incipient atheromatous deposits along the first part of the ascending aorta, and fibrinous clots in both ventricles. There was no valvular disease. The left lung was emphysematous; the right bound by slight pleuritic adhesions, and in an almost rotten state of hepatisation. The liver was cirrhotic, and the other viscera normal.

The point worthy of attention appears to be the absence, not so much of all diagnostic auscultatory signs, as of the general symptoms of aneurism —i. e., dyspnœa, and that peculiar expression of anxiety so constantly associated with structural diseases of the heart and its larger vessels.

## ROYAL FREE HOSPITAL.

### SEQUEL OF A CASE OF STRANGULATED HERNIA.

(Under the care of Mr. Gant.)

In our last "Mirror," we gave a short account of a case of strangulated inguinal hernia, in which the wound, after operation, had healed with unusual rapidity. The following report, for which we are indebted to Mr. C. F. Jeaffreson, senior resident surgeon, is valuable as showing a contingency which may arise in a case of hernia apparently perfectly cured, and though attended with comparatively little danger to life, protract the absolute recovery of the case far beyond the usual period.

On the 22nd September, Thomas B——, called attention to the condition of his scrotum, into which he supposed the hernia had redescended. On examination a tumour is found occupying exactly the same site as the hernia did previously, and about the same size; it is exceedingly hard, tense, becomes narrower as it approaches the external abdominal ring, is uninfluenced by pressure or position, receives no impulse on coughing, and has a deep though unmistakable feeling of fluctuation. The patient's general health is good, the bowels being opened with regularity every day; and he states that the swelling is of exceedingly rapid growth, having made its appearance during the course of sixteen or twenty hours.

The fluid nature of the tumour having been determined, Mr. Gant ordered it to be painted with iodine paint, in the hope that absorption might take place; but, in spite of the skin covering it being converted into one large blister, the swelling increased in size and in hardness till it became like a stone. The iodine paint was therefore discontinued, and the skin having healed, on the 12th of October Mr. Gant made a puncture with a small trocar on the anterior surface of the tumour. This evacuated between four and five ounces of clear transparent serum, such as is usually contained in a hydrocele, but left behind it an enormously thickened sac. The wound of the trocar healed immediately; but on the third day suppuration occurred within the sac; the pus accumulating within the cavity, broke open the skin at the spot where the original operation for the release of the hernia had been performed, and so discharged itself. Day by day the amount of discharge became less as the sac contracted; and on the 10th of November the man was discharged the only trace of his previous illness being a slight scar and the thickened remains of the sac, which effectually block up the external abdominal ring.

The pathology of the case might be thus construed:—From the position, history, and appearance of the tumour, it seems to have been a hernia into the funicular portion of the vaginal process of the peritoneum which accompanies the testis in its descent during early life—in other words, a "hernia of the cord." The inflammation set up by the operation obliterated its communication with the abdomen, thus converting it into a closed sac, in which the fluid subsequently accumulated. The suppuration which resulted from tapping this cyst obliterated the cavity, thus placing an effectual barrier of thickened textures at the external abdominal ring.

In this case, then, there was a combination of circumstances rarely met with—viz.: 1st. A hernia of the cord. 2nd. Union by primary adhesion of the operation wound. 3rd. Hydrocele of the hernial sac.

## HOSPITAL OUT-PATIENT PRACTICE.

We resume this week our glance at the treatment of some common affections which is adopted at certain of the metropolitan hospitals. The subject of bubo,—especially venereal bubo,—is one upon which it is always interesting to compare the views held by various experienced observers. No doubt we do not often see in the well-nourished classes those cases of suppurating bubo which, from the altered condition of the skin of the groin, are a source of endless trouble to the surgeon. Still, every now and then, in peculiar constitutions, a case may be met with which is disheartening enough to the medical attendant, who would be very grateful for any hints which were likely to help him out of his difficulty.

### BUBO.

#### GUY'S HOSPITAL.

The following is an outline of the methods of treatment adopted by Mr. Durham in the ordinary forms of bubo.

1st. In the case of the numerous, slightly enlarged, hard, painless glands usually associated with true syphilitic sores, no local treatment is considered necessary. The glands participate more or less directly in the general treatment. This essentially consists, in the majority of cases, in regular mercurial inunctions about the inguinal regions.

2nd. In the case of the less numerous (or single,) more enlarged, painful and tender, but still somewhat hard, glands, associated with simple or suppurating venereal sores, or with syphilitic sores which have become inflamed, or sometimes with gonorrhœa, *rest*, as thorough as possible, is enjoined. At the same time, all practicable measures are taken to remove the irritation and allay the inflammation of the parts primarily affected. When it can be borne, continuous pressure is maintained over the enlarged glands by means of a large pad of cotton-wool or lint, and a spica bandage. In some cases the iodide of potassium ointment, or the iodine ointment, is freely smeared over the parts beneath the pad, and from time to time gently rubbed in. In other cases (especially in those in which pressure cannot be borne, and in which the patient is obliged, or is able, to lie up), the skin over the glands is repeatedly painted with the strong tincture of iodine, or with some blistering fluid. The former line of treatment is adopted in cases in which it is desired to act upon the glands by means of medicaments absorbed; the latter in cases in which counter-irritation seems likely to be useful, and in which it can be carried out without hurt or undue inconvenience to the patient. In many cases in which there has been much tenderness, a combination of extract of belladonna with iodide of potassium has been applied with apparent benefit. Every endeavor is made in every case to prevent suppuration altogether, or at any rate to put it off as long as possible, and to confine it within the narrowest limits. If, however, suppuration should seem inevitable, warm fomentations and poultices are recommended.

3rd. In the case in which the skin is painful, red, and thinning, and in which it is manifest that suppuration has taken place in or about the glands, the buboes are at once opened by the lancet or knife in such a manner as to give the freest and quickest exit to the pus, and poultices are ordered to be applied for a few days. The direction and extent of the incision made vary with the shape, size, and condition of the abscess. As a rule, the incision corresponds in direction with the longest diameter of the abscess; and the length of it is determined by the extent to which the thinned and damaged skin will probably be left "undermined" after the bulk of the matter has been discharged. A well-judged free incision in the first instance often prevents the necessity of subsequently slitting up troublesome sinuses, and of dividing portions of undermined skin which will not adhere to the subjacent structures. In cases in which the abscess is roundish in outline, the vertical incision is preferred. In the majority of instances, however, the abscesses are elongated in the direction of the inguinal fold; in such cases the incision is made about parallel with Poupart's ligament.

In cases in which there is but a small, soft fluctuating spot surrounded by more or less defined hardened structures, and in which the skin is but slightly reddened, or not at all, and in which there are few signs of acute inflammation, a small puncture into the abscess is considered sufficient.

In some cases the abscess appears to be in the structures surrounding the glands, rather than in the glands themselves. In such cases, after the matter has been evacuated, the glands may be seen standing out, as it were, more or less enlarged and hard, and overlapped to some extent by the undermined edges of the incision. The application of strips of lint smeared with the red oxide of mercury ointment to the glands is the treatment ordinarily adopted when the case has assumed a chronic aspect.

In cases in which open buboes take on a chancrous aspect they are treated on the same principles as the primary sores to which they correspond. Some are stimulated, as by nitric-acid lotion or black lotion; some are soothed by the application of preparations of opium or anodyne poultices. Occasionally, but rarely, destruction of the surface by strong nitric acid is necessary. In many instances the iron lotion (ferri potassio tartras, from ten to twenty grains in one ounce of water) is found useful, or a mixture of the iron lotion with some opiate.

In all cases the most thorough rest compatible with the patient's circumstances is insisted upon; and in cases in which general rest is impossible, local rest is ensured as far as practicable by means of pad and bandage. In all cases, also, the general health of the patient is carefully attended to, and any constitutional symptoms are treated from time to time as they may arise.

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### ST. BARTHOLOMEW'S HOSPITAL.

Enlargement of the inguinal glands often comes under Mr. Callender's notice in the out-patient room, and, beyond the continuance of general treatment for the disease, if any, from which such enlargement has originated, he does not resort to any active remedial measures, the patient being simply required to rest as much as possible in the recumbent position, or at all events to abstain from active work. Occasionally, for a medicine-wanting patient, some lead lotion has to be prescribed; and when, as now and then happens, the glands are somewhat painful, an opiate plaster is found to be an acceptable application.

The most speedy and the most certain mode of dispersing such glandular enlargement consists in the removal of the causes of the irritation, foremost amongst which are affections of parts of the genital organs and of the lower part of the rectum. Often, however, from the inability of the poor to obtain sufficient rest, the parts around the enlarged glands inflame and suppurate. During this stage warm emollient applications give the greatest relief; and later on, when suppuration has been fully established, a vertical incision becomes necessary, but in no case is the knife had recourse to until matter has fully formed throughout the bubo. After letting out the pus, a linseed-meal poultice for a day or two, and the subsequent use of water-dressing, complete the local treatment.

In broken-down subjects poisoned with syphilis, a bubo which has ulcerated, is dusky-looking, with ragged undermined edges, and extending pretty widely through the groin, is frequently very slow in healing, not so much from any speciality which may infect it as from the ill-nourished and long spoilt system in which it is formed. Whilst attending to the general health, help may be given to such by cutting away the overhanging edges, by laying open sinuses, and by local applications (such as the dilute nitric acid) which destroy the unhealthy structures forming its surfaces. Such cases are often tedious in the extreme, and in truth are best remedied by transferring them from the out-patient room to the hospital ward, where they are speedily helped on, chiefly by the good food and by the enforced attention to cleanliness. As an ulcerating bubo happens to be languid in its healing, or irritable or painful, various simple remedies suggest themselves, such as zinc or opium lotion, and so forth.

The local treatment which suffices in the great majority of cases is rest, incision when suppuration is established, and the subsequent use of water-dressing. General treatment is of course as varied as are the conditions which influence the origin and the progress of the glandular affections.

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### ST. MARY'S HOSPITAL.

Mr. Gascoyen has observed in his practice that most of the cases of bubo requiring treatment have occurred either in strumous persons or in those of that particular habit of body known as the *lymphatic temperament*; and he is disposed to believe that, in the large majority of patients, buboes are determined by constitutional rather than by local causes.

Any simple irritation of a part whose lymphatic vessels are in connexion with a particular chain of glands may occasion enlargement of those glands; but, in a healthy person, when the excitant is removed, the swelling will subside, and the glands recover their normal size and condition. In scrofulous or weekly subjects, however, in whom the vital processes are less active, and even in healthy persons who are careless of themselves, such glandular enlargements are more persistent; and they will often remain stationary, or will slowly increase under the stimulus caused by the ordinary movements of every-day life. When in this morbid condition, any further irritation may excite inflammation in the glands; but it seldom assumes an acute form, and usually subsides under rest and simple remedies, though occasionally it will pass on to the formation of matter, and necessitate incision.

In the treatment of buboes, *rest* is the essential point to be obtained; and if the patient will early submit to this, the cases are but few in which suppuration may not be prevented. It is, however, difficult to secure this until the pain and inflammation have become severe.

After rest, Mr. Gascoyen has found poultices and warm fomentations of most service; the gentle warmth and moisture are most grateful, and, as they maintain the suppleness of the skin in the groin, the patient is enabled to walk about with greater freedom and less pain than under other methods of treatment. At night, some blue ointment, with or without the extract of belladonna or of opium, a weak iodine ointment, or some other form of mild discutient, may be smeared upon lint and applied under the poultice. These applications should not be rubbed into the affected parts, as the friction often acts injuriously.

Compression, by means of pads and bandages, has not succeeded in Mr. Gascoyen's hands, as it is impossible to keep the patient from walking about, and the constant rubbing thus caused by these applicances upon the swollen glands constitutes a further source of irritation.

If, in spite of treatment, the glands have remained enlarged for a length of time, and are inconvenient from their size, occasionally becoming painful with exercise, three or four leeches, applied twice or three times a week, will usually succeed in reducing them, either by promoting their absorption or by causing them to suppurate. A succession of small blisters will often bring about the same result.

In those cases where the glands are sympathetically inflamed, as in gonorrhœa, balanitis, excoriations of, or sores on, the penis, &c., rest and evaporating lotions will generally relieve the inflammatory condition; but if the skin become reddened and the swelling painful, ten or twelve leeches should be employed, and repeated if necessary, followed by poultices. When the pain has subsided, absorption of the swelling will be expedited by the use of discutient ointments as above.

Mr. Gascoyen has seldom found benefit from the application of ice in such cases; it usually produces considerable pain in the part, and cannot long be tolerated. In his experience, suppuration has usually followed its employment.

Should the inflammation pass on to the formation of pus, as soon as it can be detected a puncture should be made to relieve the pain and tension, and to allow the escape of the matter; the bleeding from the cutaneous vessels is also of service in relieving the congestion of the skin.

As a general rule, Mr. Gascoyen is averse to the use of the knife in the treatment of bubo; in acute cases, however, which require incision, a small opening should be made early. When the affection is subacute and progresses slowly, and especially in strumous patients, incision should be postponed until suppuration is not only fully established, but a sufficient time has elapsed for the affected glands to have become broken down, or until the attenuated skin would suffer by further delay, or the purulent collection has commenced to burrow beneath the integument and form sinuses.

In these chronic buboes, which, although taking origin in a local cause, are mainly dependent upon the state of the constitution, every means should be adopted to procure absorption of their contents, as not unfrequently large collections of fluid will entirely disappear, even when the skin covering them is much thinned and congested. Often, also, when the fluctuation is distinct, and the presence of matter seems to be unequivocal, a few drops of turbid serous fluid only will follow the knife, and a gaping wound results, through which large infiltrated glands protrude and prevent its healing until they have been destroyed. When sinuses have been formed by the burrowing of matter, incisions should not be resorted to until other methods of treatment have failed, as the large puckered cicatrices which result from this practice interfere greatly with the after use of the limb, and occasionally these scars, from over-exertion, will re-open and form most troublesome wounds to heal. To effect the closure of these sinuses, setons may be introduced through them, or they may be injected daily with stimulating lotions, or thoroughly plugged with lint, either dry or steeped in these. Pressure, by pads, upon their track is sometimes a useful adjunct; and, where the sinus is quite subcutaneous, pencilling the skin freely with the solid nitrate of silver will frequently excite sufficient inflammation to cause adhesion of the walls.

The indurated condition of glands which almost invariably attends a hard chancre, or is present in cases of constitutional syphilis, seldom requires local treatment. Should inflammation occur, it is the result of simple irritation, and is rarely followed by suppuration; rest and the remedies employed for the general infection will usually cause their gradual subsidence.

The reverse is the case, however, in the buboes which succeed to the soft or non-indurated form of chancre; but they are by no means its constant accompaniment. They may arise from simple causes, but sometimes are determined by the absorption of matter from the surface of the sore, and its transference to a lymphatic gland. When this occurs severe inflammation at once ensues in the gland and surrounding cellular tissue, and an acute bubo is speedily formed. In these cases, as suppuration is certain to take place, Mr. Gascoyen advises that a somewhat free incision should be made very early to insure the escape of the pus as soon as formed. The matter is of a virulent character, and, like the sore from which it originated, capable of inoculation; so that the open bubo is in truth a glandular chancre, and must be treated as one.

The constitutional treatment of buboes must depend upon their cause; but, as a rule, it should be of a tonic character, except where there is much inflammation. In some cases iodide of potassium will be found of service. When the bubo is chronic, or an indolent sore has resulted, a moderate amount of stimulus, with a generous diet, is highly requisite.

### WESTMINSTER HOSPITAL.

Mr. Francis Mason is in the habit of treating the "sympathetic bubo," or that arising from simple inflammatory action, however caused, by the application of water-dressing from the commencement. The evacuation of the matter is delayed until the skin has become thin, when a small puncture is made in a dependent position, with a narrow tenotomy knife. The patient will scarcely feel this proceeding if the precaution be taken to make slight pressure on the surface, so as to render the skin tense at the seat of puncture. The contents are allowed to drain away spontaneously. Mr. Mason disapproves of violent manipulation in such cases and believes that, besides causing much suffering to the patient, it favors the re-accumulation of pus. The plan above described has been attended with the best results in this locality, as well as in those abscesses which are met with in the neck near the sterno-mastoid muscle. It is comparatively painless, and the scar that remains is scarcely perceptible. The water-dressing has some advantages over the poultice. It is more readily kept in position, and is cleaner and less cumbersome than the poultice, which gets dry, and sometimes becomes very uncomfortable. In the "suppurating bubo" that so frequently accompanies the simple non-infecting sore on the penis, a similar plan of treatment is adopted, unless the case proceeds to the complete destruction of the skin, leaving an unhealthy-looking ulcer, with ragged edges. The surface of such an ulcer may be much improved by the application of a poultice for a day or two, after which a lotion of nitric acid, or of myrrh, or the black wash, or even the water-dressing, according to circumstances, may be used with advantage. Mr. Mason finds that when the ulcer assumes an indolent appearance, the application of the powdered peroxide of iron to the part is attended with marked benefit. As a general rule, a tonic course of constitutional treatment is employed, adding, if necessary, five grains of Plummer's pill as an alterative every other night. As to the "multiple indolent" or amygdaloid enlargement of the glands which accompanies the "true infecting," or that sore which usually infects the system, no local application is used. Mr. Mason joins with those surgeons who delay the administration of mercury until the secondary eruption, appears, when the solution of perchloride of mercury (P.B.), in drachm doses, is found to be a most valuable remedy.

### LONDON HOSPITAL,

In the endeavor to prevent suppuration in specific bubo, Mr. Little is in the habit of applying leeches, one or two daily or every other day, according to the extent and degree of the inflammation in the part. He finds no other measure equally efficacious as this, which, if it does not prevent suppuration, generally lessens the size and acuteness of the abscess. Leeches are applied by out-patients pretty regularly, and are therefore, he thinks, preferable to ointments, lotions, or poultices, which are often only half used by this class of patients, whose occupations interfere with treatment.

Mr. Little opens buboes early and freely, in order to limit the disease and hasten its cure, removing any thinned undermined skin, leaving a cavity with an aperture which any application can easily reach.

A weak solution of Condy's fluid is used at first and superseded by a lotion of tincture of iodine (ten drops to an ounce of water) if the suppuration is excessive. Should the sore show no tendency to granulate, Mr. Little brushes the edges with nitric acid or removes them with the knife, fills the cavity with lint soaked in a somewhat stimulating lotion, and applies pressure with strapping or bandage; giving bark, quinine, or iron internally, unless other symptoms indicate the use of specific treatment.

### UNIVERSITY COLLEGE HOSPITAL.

Mr. Berkeley Hill's first object in treating venereal bubo (Mr. Hill prefers the term "venereal" to "syphilitic," as syphilis is seldom the cause of suppurating bubo) is to allay the congestion and hyperplastic action of the cellular tissue around the inflamed glands, as this new formation becomes pus with extreme readiness, and leaves obstinate ramifying sinuses. Before suppuration has commenced, the patient is ordered rest in the horizontal position, to foment frequently with very hot water, and if the skin is already red, to lay on linseed poultices between the fomentations. If congestion is very great, a vertical incision half an inch long is made at the most prominent part, and bleeding encouraged by fomentations. Where this early treatment prevents suppuration, and irritation is subdued, the swelling is firmly compressed by a pad and spica bandage. If this swelling is slow to subside, the skin covering it is stimulated by painting with iodine and iodide of potassium dissolved in three times their weight of spirit, or some other blistering fluid. If suppuration takes place, as soon as the skin yields at any point the knife is used and the matter drained away. Sinuses are stimulated by passing threads along them to their farthest limit and bringing the ends out through the skin. A weak lotion of sulphate of zinc or nitrate of silver is daily injected into their channels. If this fails to close them, they are laid open, and the undermining tracts stuffed with lint, poulticed for a few days, and then dressed with red wash. When the skin is purple or much undermined, it is destroyed by potassa fusa and also poulticed. If the surface assumes serpiginous ulceration or becomes very indolent, or if a lymphatic gland remains without granulating, the surface is thoroughly cauterised with three drachms of nitrate of silver in half a drachm of nitric acid and an ounce of water, then well poulticed until the slough separates, and afterwards dressed with water-dressing and well bandaged. If the constitutional disturbance is considerable, a purge and a saline febrifuge mixture are given. Afterwards, good diet, with beer; and for feeble digestion, quinine, with tincture of perchloride of iron. For weakly or scrofulous persons, fifteen grains of tartarated iron, with cod-liver oil and other tonics, are given. Mr. Hill never gives mercury or antimony for this affection.

# Medical Societies.

JANUARY—FEBRUARY.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Mr. Prescott Hewett, Vice-President in the Chair.

### ON SOME ANALOGIES OF CHOLERA IN WHICH SUPPRESSION OF URINE IS NOT ACCOMPANIED BY SYMPTOMS OF URÆMIC POISONING.

BY W. SEDGWICK, ESQ., M.R.C.S.

After adverting to the various theories which had been advanced in reference to the nature of cholera, the author proceeded to the analogies of the disease, which he thought, in the more prominent symptoms—such as the suppression of urine and the empty state of the bladder, collapse, and other symptoms,—showed their identity with cholera. He enumerated amongst these, cases of acute poisoning—as, for instance, by corrosive sublimate, arsenic, some of the mineral acids, putrid food, poisonous fungi, and powerful medicines, such as croton oil, &c. All these were followed by collapse, and in most cases by suppression of urine and gastro-intestinal irritation. But there were other cases more like cholera than these in their symptoms—as, for instance, perforation of the intestine, in which collapse and suppression of urine followed. Strangulation of the intestine also gave rise to similar symptoms. In some of the cases above enumerated the condition of the vascular system and the blood was like that which prevailed in cholera. He came to the conclusion from these facts, which were amply corroborated by a series of very carefully conducted experiments, that the cause of the collapse and other symptoms in cholera was dependent upon an impression made on the sympathetic nervous system by the irritation produced by the poison on the mucous membrane of the gastro-intestinal canal.

Mr. French made some general observations on cholera, but not with reference to the immediate subject of the paper; and his attention having been called to this point by the president, Mr. French sat down with the observation that he found he was wide of the mark.

Dr. George Johnson disputed the correctness of the analogies advanced by the author of the paper, and contended that in all cases of poisoning, the poison must be absorbed into the blood before it produced its effects on the system. He remarked on the difficulties of comparing cases of poisoning with cholera, more particularly as to the suppression of urine in certain cases, which might arise—for instance, in poisoning by corrosive sublimate—from the direct action of the poison on the kidneys. He instanced a case in which collapse followed the inhalation of dust from croton-oil seeds, and in which purging did not take place until some doses of castor oil had been administered, to show that the collapse to which Mr. Sedgwick referred was not necessarily due either to the irritation or the purgation which took place when croton oil was administered internally. He argued that it was unfair to trace a single symptom or train of symptoms to one particular cause, and said that coma might be produced from very opposite causes—e. g., either from congestion or anemia of the brain. As to perforation of the intestine, to which the author had referred as an instance in which collapse constantly resulted, as he said, from irritation of the mucous lining, it was well known that collapse was due to the wound made into the peritoneum and the escape of the contents of the bowel into a serous cavity, acting, not as he (Dr. Johnson) believed, on the ganglionic system, but on the spinal and pneumogastric nerves. The speaker was still of opinion that cholera was essentially a blood disease; and he enumerated his reasons for this belief, which have lately occupied the attention of the profession in a controversy published in the pages of THE LANCET. The author, in his paper, had not referred to the treatment of cholera, but in his book he adduced several instances in which bleeding had been apparently of some service. If, then, the collapse in cholera and in perforation of the intestine were due to the same causes, why was not bleeding resorted to, to remedy this injury?

Dr. Marcet said that in states of collapse there was a diminution of the quantity of urea in the system, as it would appear to be unnecessary; in an increased temperature of the system there was, on the contrary, an excess of urea. He then related a case of poisoning by corrosive sublimate, in which all the symptoms were so similar to those of cholera that he regarded it at first as a case of that disease.

Mr. Sedgwick, in reply, remarked that blood-letting was formerly resorted to to a great extent in cases of perforation of the intestine. Life was not diminished, it would appear, by this proceeding; he therefore thought that Dr. Johnson's argument on this point did not possess much force. He did not mean to assert, in his paper, that there was no blood-poisoning in cholera, but to maintain that it was not necessarily a blood disease. He was of opinion that the fungus theory of cholera would eventually be found to be the correct one.

Mr. Alexander Bruce showed his Battery for the application of the Actual Cautery; and

Dr. Brunetti exhibited some very beautiful morbid specimens of Heart and Lungs, prepared by his ingenious process.

## ON EXCESS OF UREA IN THE URINE AS A GUIDE TO THE DIAGNOSIS AND TREATMENT OF CERTAIN FORMS OF DYSPEPSIA AND NERVOUSNESS.

BY HENRY WILLIAM FULLER, M. D. CANTAB., F.R.C.P.,

Physician to St. George's Hospital.

Dr. Fuller began by stating that, in the year 1864, his attention was arrested by the existence of a great excess of urea in the urine of a patient whom he was treating for dyspepsia, accompanied by strongly-marked nervous or hypochondriacal symptoms. The amount of urea in a given bulk of the urine was so great that, on the addition of nitric acid, crystals of nitrate of urea began to form in about twenty minutes, and ultimately filled the interior of the test-tube. This condition of the urine has never been described as a feature either of dyspepsia or of nervousness; and as from its persistency in the case under observation Dr. Fuller was inclined to regard it as an essential feature of the malady, he resolved in future to search for urea in the urine of every patient who presented a similar train of symptoms. The result has been that he has discovered an excess of urea in twenty-seven patients; twenty-six of whom were males, varying in age from twenty-three to fifty-four.

After describing the general symptoms by which this condition of the urine was accompanied, Dr. Fuller gave the details of two well-marked cases; and stated that since his attention had been directed to the subject he has seldom been disappointed in his expectation of finding an excess of urea when the symptoms have led him to suspect its existence. Without exception the patients have been tolerably healthy in appearance, and often somewhat florid, though in some instances they have lost flesh slightly—indeed, their aspect has been so little indicative of disease, and their complaint of suffering has been so constant and so urgent, that any practitioner who did not examine the urine for urea could scarcely fail to regard them as simply hypochondriacal. Their complaint has been of flatulence and acidity, extreme languor, restlessness at night, and distressing nervousness. Even a moderate amount of exertion has induced fatigue, so that they have abstained almost wholly from exercise. This last Dr. Fuller regarded as an important feature of the complaint, inasmuch as it bears upon the point which was next discussed—namely, the source of the excess of urea. He maintained, by reference to the history of the cases and to the marked indisposition to and incapacity for exertion, whether mental or bodily, manifested by sufferers from this complaint, that the urea is not formed, solely at least, during the destructive processes of assimulation as a consequence of the wear and tear of the tissues—the source whence urea is commonly supposed to be derived,—but is due to the production of urea from the elements of the food during the primary processes of assimilation, probably as a consequence of perverted nervous action.

In conclusion, Dr. Fuller mentioned several circumstances which induced him to believe that this affection is near allied to gout.

Dr. Althaus expressed his indebtedness to the author of the paper, but he objected to the title "dyspepsia." That, as well as nervousness, were only symptoms. The cases were not uncommon; they were merely rare because the urine was rarely examined. His attention was directed to it by a country practitioner, who suffered from it, especially after overwork. He believed that its origin was to be sought in the nerve-centres, and was probably connected with the electrical currents in the cord shown to exist by Du-Bois Reymond and Ranke. His treatment was, therefore, the application of the continuous current to the spine.

Dr. Leared said that the disease was not new to him, for seven or eight years ago he began analysing urine by Liebig's method, but found it too troublesome, and abandoned it for one of his own. He devised a graduated tube, into which he put equal parts of urine and nitric acid, and was thus able to estimate the amount of urea in the specimen examined. He spoke of it to one patient, an intelligent man, who diminished his quantity of meat, and finally gave it up altogether. Yet there was no diminution of the urea; so that it probably in all cases originated from metamorphosis of the tissues. He would, therefore, recommend remedies which arrested this, as iron and arsenic.

Dr. Routh would point out one error. The test was fallacious, except the whole quantity of urine passed in twenty-four hours was examined. When competing for a prize, he had examined about seven hundred cases, and finally was obliged to resort to the plan of estimating the whole amount. By this method he found that some of the patients who appeared to pass urea in excess really did not pass enough, and in only about two of the whole number was there anything like an excess of urea. In these there was also excess of urinary water.

Dr. W. Ogle corroborated Dr. Fuller. After his attention was directed to it he had seen many cases in broken-down men. In his own secretion he had found what he believed to be excess until he estimated the whole amount, when he found that it was the water which was deficient. The effervescence noticed might, he thought, depend on the oxidation of the coloring matters of the urine by the nitric acid and the consequent liberation of nitrous acid. As urea was excessively soluble in this last, it might follow that the whole might not appear as crystals.

Dr. C. J. B. Williams thought the test by no means accurate, being a test of concentration rather than of amount. The disease had attracted his attention several times. In fact, it had not been entirely overlooked; both Prout and Willis referred to it. It was allied, he thought, to gout, and mostly occurred in broken-down people, especially where rest was deficient. He thought it was wrong to speak of the disease as one of the nerves; it was rather one of the whole frame. One remedy he had found very useful—viz., opium. The specific gravity of the urine was also diminished by quinine. As yet the disease was not fully investigated.

Dr. Fuller, in reply, stated that there were certain points in the paper rather mooted than proved. The title, he said, expressed what he wished it, being intended to distinguish the kind of dyspepsia referred to. He also pointed out that in six cases the whole amount of urine had been analysed with the results given in the paper. Dr. Leared's plan was not to be trusted any more that the tube was graduated, for crystals of nitrate of urea occupy very different bulks at different times —they must be weighed. He did not wish to make out that the disease had been entirely overlooked, but others had spoken of the excess of urea without reference to the other symptoms. Thus, Dr. Ringer's case of azoturia was of a totally different cast. Even Prout did not exactly recognise it; he said the condition was rare, while he (Dr. Fuller) held it to be common. Dr. Prout also said that such urines were prone to decompose; in reality they were quite the opposite.

## PATHOLOGICAL SOCIETY OF LONDON.

Mr. CURLING, F.R.S., President.

THE meeting was somewhat more fully attended than usual. First of all, a report on T. Bryant's case of Osteoid Tumour of the Thigh was read by Dr. Moxon; it stated that the microscopic characters were those of ossifying cartilage. Dr. Marcet's report on the Chylous Fluid presented by Dr. Wilks at the last meeting was not forthcoming.

Mr. Spencer Wells exhibited a large Fatty Tumour of the Mesentery, weighing 20 lbs., which he had removed that afternoon from a woman aged twenty-three, who had been known for years to have been suffering from some undiagnosed lump in the belly. Two years since, she began to be confined to her room, and the tumour increased rapidly. Mr. Wells at first made an exploratory incision, and subsequently determined to remove it, which he did easily. There was one little portion which he believed to be one ot the appendices epiploicæ enlarged and filled.

Dr. Wilson Fox, Dr. Moxon, and Mr. Prescott Hewett spoke to the occurrence of similar tumours in different parts of the body; Mr. Hewett remarking that in one of his cases a lump the size of a cocoa-nut was met with in the thinnest woman he ever saw. Mr. Curling agreed that they occurred in thin people.

Mr. Maunder brought forward a Case of Aneurism of the Aorta and the Root of the Innominate Artery. During life, it was supposed that the seat of enlargement was the innominate artery and the subclavian and carotid arteries on the distal side of the sac were tied. The subsequent clotting was very extensive, reaching back to the heart, and accounted for the death on the sixth day. The patient was a man thirty-seven years old. Seven years since, he had popliteal aneurism; one year since, great pain in the chest; seven months since, a terrible and self-recognised pulsating tumour.

Mr. C. Heath referred to a case of his own in which he had operated successfully, and argued that cases of aortic aneurism had been cured by the distal operation, which was the correct one in Mr. Maunder's case, though the coagulation there had been too extensive, and overshot the bounds of cure.

Mr. Maunder exhibited an Inguinal Aneurism, in which, after other means had failed, the common iliac artery was tied. The patient died on the seventh day from gangrene, the profunda artery being involved, the iliac vein blocked, the heart diseased, and the abdominal aorta dilated.

Dr. Bastian commented upon a specimen of Cirrhosis of the Lung, entering into a detailed criticism of the views of French pathologists, and arguing on the special nature of the induration.

Dr. Wilson Fox pronounced cirrhosis to be, nosologically, a misnomer. The condition comprised under that term he regarded as the termination of diseases that implicate, but do not soften up, the lung. Of all causes of cirrhosis, he believed the indurating form of tubercle to be the commonest. He opined that the question of the end and cure of tubercle requires to be reinvestigated. He thinks the fibroid induration to be a frequent stage in the cure of tuberculisation.

Dr. Leared brought to memory an instance of induration produced in connexion with pleuritic effusion.

Dr. Sibson declared that, in the present case, there was no tubercle whatever found in the lungs at the post-mortem, and that the cirrhosis had no connexion with phthisis.

Dr. Leared showed a specimen in which what appeared to be a syphilitic indurated mass existed in the aorta, in company with a smaller patch, whence ran a very deep ulceration downwards to the edge of the flaps of the valves, which had by its destruction occasioned aortic insufficiency and death. There was a history of syphilis, and by negative evidence, chiefly, Dr. Leared arrived at his diagnosis of the nature of the mass.

Mr. C. Heath brought forward four specimens: Firstly, one of Fracture of the Metacarpal Bones, in conjunction with comminuted and compound fracture of the bones of the forearm, for which he had performed amputation. Secondly, Scirrhus of the Hand, which had originally appeared at the base of the ring finger, had reappeared in the cicatrix after removal, and a third time on the palm of the hand, so as to necessitate the removal of the hand itself. It presents under the microscope all the characters of scirrhus. Thirdly, a Melanotic Cancerous Mass from the Arm, which commenced like a nævus, and was treated as such. It was then removed, but reappeared last October in the cicatrix, and in the glands in the armpit, both masses being removed. Pleurisy set in, and death ensued; on post-mortem, melanotic cancer and pyæmic abscesses of the lung were found, and cancer of the bronchial glands. Fourthly, he exhibited two Cancerous Masses removed from the jaw of a child. The last one had grown enormously in the space of four days, so as to be a serious obstruction in the mouth, and to force its way through the skin.

Dr. Cayley's specimen of Colloid of Mediastinum and of Abdomen followed; and Dr. Pye Smith showed the parts in a case of complete Transposition of the Viscera.

The Committee on Morbid Grows reported, in regard to the mass removed from the lower jaw by Mr. Heath, and exhibited at the last meeting, that they coincided with the opinion expressed by Mr. Bruce, that it was of a truly cancerous nature.

Dr. Sanderson and Dr. Cayley detailed the result of their examination of Dr. Leared's specimen of supposed syphilitic deposit in the aorta, which led them to the conclusion that it was atheromatous in nature. Dr. Leared expressed his regret that no special note had been made of the ulceration which ran from the patch to the flap of one of the aortic valves, and sought for an explanation as to its cause.

Dr. Peacock believed that it was one of those instances of ulceration which more or less frequently occur in connexion with atheroma.

Dr. Ogle exhibited a specimen of the early stage of what he believed to be primary cancer of the vertebræ, and in the preparation the mode in which pressure is made on the spinal cord was well seen. The history of the case was one of paraplegia, in which the diagnosis of softening was at first made, but corrected to cancer in consequence of the occurrence of œdema and other signs. The patient died suddenly from some cause independent of the cancerous disease.

Mr. W. Adams asked Dr. Ogle if any microscopical examination of the tumour had been made, also whether cancerous elements had been found? Because if it were a case of primary cancer of the vertebræ it was of great interest. On a superficial examination he (Mr. Adams) was inclined to think that it was strumous disease, with collection of matter in front of the bodies of the vertebræ.

Dr. Ogle stated that it was quite a recent specimen, and no minute examination had been made. He brought it forward to show the way in which pressure was made on the cord, but he had no objection to its being referred to the Committee on Morbid Growths; and it was so referred.

Mr. Maunder showed several living specimens illustrative of conservative surgery in resection of joints.

Dr. Peacock sent round the room, first of all, an aneurism of the aorta, taken from the body of a man who had apparently been healthy until the early part of the year, when he was admitted into hospital with dulness in the left subclavicular region, distinct from the cardiac dulness, associated with the ordinary auscultory and palpatory signs of aneurism. After a while the voice altered and dysphagia was present. There was also a difference in the two pulses, the left being much the smaller of the two. At the post-mortem examination an aneurism, the size of a cricket-ball, was found springing from the anterior portion of the transverse arch, and the pneumogastric nerve was lost from being pressed upon where it ran over the most prominent part of the sac.

Dr. Peacock also brought for exhibition an example of Strumous Pyelitis (Rayer) of the Kidney, taken from a man who presented, when first under observation, signs of phthisis, but his urine was also full of pus, and his urethra would not admit a catheter. Two months before the man had received a kick, and he suffered in consequence from pain about the sacrum, hip, and groin; he could not bend the leg or thigh, whilst a fulness appeared in the groin. After death a large abscess was found reaching from the under portion of the ribs to the thigh, in conjunction with caries of the vertebræ, the strumous pyelitis, two abscesses in the prostate, tubercle in the epididymis, and slight deposit in the lungs.

Dr. Peacock's third specimen was an Abscess of the liver opening into the Pleura, the matter being discharged by the lungs during life.

Mr. Lockhart Clarke read a very interesting paper on behalf of Dr. Duchenne, on a peculiar form of Hypertrophy of the Muscles in connexion with more or less Paralysis. The most general symptoms are malaise and increasing want of power, especially over the muscles of the leg, which increase prodigiously, especially the gastrocnemii. In some cases the muscles of the calf alone enlarge, while others shrink, so that the upper part of the body may be shrunken whilst the legs are enormous; in other cases the muscles generally have enlarged; in all cases the hypertrophy of the muscles is associated with more or less paralysis. On microscopic examination, the hypertrophy is seen to consist especially of an increase in the fibrous tissue about the muscles, with an increase of the adipose elements between the bundles of the muscular fibres, which themselves are unaffected. Mr. Lockhart Clarke handed round a series of photographic illustrations of the disease, and also a drawing of a small instrument used by Duchenne for cutting out for examination pieces of muscle from the living subject.

Dr. Hilton Fagge remarked that some years since he had seen at Vienna, in the wards of Professor Oppolzer, a case in which the disease existed in a well-marked form, the gastrocnemii being enormously developed in connexion with incomplete paralysis.

Mr. Adams stated that he had seen a few cases, and agreed in the description given by Mr. Clarke. A case at present is an in-patient of the Orthopædic Hospital.

Dr. Graily Hewitt brought forward a rare case of Traumatic Aneurism of the Uterus, which occurred within a few days of parturition. The woman who was the subject of the disease was delivered by the forceps, and all went on well till the fourth day after labour, when the husband came home drunk, and it is said he knelt upon his wife, and no doubt he did. Soon afterwards an escape of blood and a good deal of inflammatory action about the uterus occurred. The hæmorrhage recurred, and the woman died on the thirty-seventh day after labour. At the post-mortem the uterus was found to be pouched on the right side, about half way down, and into this projected a nodular swelling, the size of a nut, containing clotted blood. From this pouch-like enlargement a probe passed into a large abscess about the uterus. On dissection, the aneurismal sac was found to be seated in one of the large uterine vessels.

Dr. Murchinson exhibited a case of Rupture of the Heart.

Mr. Nunn showed an Epithelioma of the Bladder in a chimney-sweep. In this case there was a communication existing between the bladder and the rectum, and there was intense pain.

A Fellow asked Mr. Nunn whether there was much pain before the communication between the bladder and rectum had been set up, because it seemed that when this occurred high up in the small bowel, and when fluid contents entered the bladder, the pain was much less or absent; whereas when it was low down the pain was always severe.

We understood Mr. Nunn's answer to confirm this view.

Dr. Trimen brought forward a large semi-calcareous tumour removed from the back by Sir W. Fergusson in King's College Hospital. It weighed 2 lb. 10 oz., and measured 7 in. by 6 in., and was 4¼ in. thick. On section, it was found to be made up of fibrous tissue, filled by an earthy substance, semi-cheesy; and roundish pellets could be turned out of loculi. The earthy matter was made up of semi-crystalline granules, about the 1000th of an inch in diameter. Chemically, 100 parts of the mass contained 2·7 of earthy salts, mostly phosphates; and 97·3 of organic matter.

Mr. Arnott showed an example of Rupture of the Bladder at the upper and anterior wall, which occurred without injury.

Mr. Durham took exception to the cause ascribed, and thought that much was due to the attempt at catheterism, which had been made when the man was suffering from retention of urine just before his death, for which he had been punctured per rectum after other means of relief had failed.

Mr. Arnott pointed out that it was apparently incredible, from the site of the rent, that such a cause were either possible or probable.

Mr. T. Holmes commented upon a mass from a rectum, which he exhibited, and which appeared at first sight to have been a part of intussuscepted intestine. It was removed during life from a man thirty-seven years old, who had received an injury two years before, which was frequently followed by retention of urine. On October 2nd he got drunk, and had retention of urine again; and whilst straining he had what appeared to be prolapsus to the extent of three inches of the bowel, which he returned with his finger. This was soon followed by abdominal pain, vomiting, bloody stools, and tenesmus. On examining the rectum, a large mass was found, the size of a duck's egg, round which the finger passed without discovering a pedicle; it seemed like an intussusception. After a dose of morphia, on the following day, Mr. Holmes pulled down a black mass like a dark hernial sac; but it was not this, because there was an entire absence of hernia symptoms. Diarrhœa existed, and sloughs had come away; and there was no peritonitis, but occasionally rigors and collapse. Mr. Holmes cut the tumour off, when it was seen that it was not a piece of invaginated bowel, but a fibro-fatty mass. The man died of pyæmia. At the post-mortem, the rectum was found to be healthy for the first nine inches, at which distance was found an annular ulceration round the circumference, showing the place of connexion of the removed tumour. At different spots other ulcers were seen, and slight projections; and at these places the intestinal walls were deficient and the bowel was adherent to the abdominal wall, which made up, as it were the canal of the intestine. The ileo-cæcal valve was gone, and a similar condition of the wall of the bowel was found in connexion with the parietes of the iliac fossa—as if the bowel had sloughed; and attached to it here was a mass similar to that found in the rectum. The intestine was not invaginated. Mr. Holmes referred to a preparation of a similar kind in the museum of

St George's Hospital, and asked for information relative to the nature of the ulceration.

Mr. Wood brought forward a case of Aneurism of the Middle Cerebral Artery, which was characterised by symptoms of unilateral (left) neuralgia, subsequent dimness of sight, temporary paralysis (one hour's unconsciousness), repeated attacks of a similar kind, and, finally, sudden death. He also showed a damaged leg he had removed, in which there was a series of injuries about and into the knee-joint, with rupture of the anterior tibial artery; and, lastly, a case of Scirrhus of the Breast, in which, in consequence of pressure on the lactiferous ducts, they and their ramifications had been enormously distended, the woman undergoing lactation during the progress of the disease.

Mr. Durham exhibited a Malignant Growth on the Leg, which latter had been removed.

Dr. Wilson Fox exibited, for Mr. Spencer Wells, an example of either true Cancer, or Sarcoma like it, in the Ovary.

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## OBSTETRICAL SOCIETY OF LONDON.

DR. HALL DAVIS, President.

Dr. Barnes exhibited a series of photographs illustrative of Face Presentations.

Dr. Cleveland exhibited a photograph of a child born with Imperforate Anus, but who survived its birth ten weeks and four days. Two attempts to reach the bowel had been made, but they had not been successful.

### ON THE CONDITION OF THE UTERUS IN SO-CALLED "POWERLESS LABOUR."

BY J. BRAXTON HICKS, M.D., F.R.S.,

Co-Lecturer on Midwifery and Assistant Physician-Accoucheur at Guy's Hospital, and Examiner in Midwifery at the University of London.

The author began by showing the difference in the value of the term as employed by various writers on midwifery, being by some employed to express simply the quiescence of the uterus in the early stages; by some, the worn-out and exhausted uterus after very protracted labour. He then reviewed the opinions held on the condition of the uterus in the cessation of the pains, which had been held to be the cessation of all uterine action. He then proceeded to trace out the train of symptoms in ordinary labour, because by the clear understanding of the process the reason why, in the first stage, untoward symptoms came on slowly, and why, in the second stage, they came on much more quickly, was not difficult to be perceived. The author considered that the difference in the demand upon the supply of the nerve-force made this difference: as the child descended, the reflex irritation increased in proportion; so when detention took place in the first stage, less irritation was produced, and serious symptoms made their appearance later; when detention took place in the second stage, reflex irritation increased in proportion to the advance of the head, and serious symptoms appeared in like proportion. But sooner or later, when detention took place, whether in the first or in the second stage, serious symptoms arose. The author then proceeded to point out that, contrary to the opinion that the cessation of the pains was cessation of uterine action, it was a fact that he had in every case observed that when the pains had ceased, and at the same time serious symptoms had arisen, the uterus had not ceased to contract, but had really become more active than ever: the rhythmical pains having indeed subsided, but a state of continuous contraction had taken their place. He held it as the result of observation, that this substitution of continuous action for the intermittent pains was the precursor and cause of the serious symptoms which were always considered to indicate the necessity for interference; that this continuous action remained till the powers of the patient gave way in the well-known typhoid form; that till this continuous action takes place the symptoms which are always held to be indicative of the necessity for interference do not appear; that it is very rare indeed that any serious symptoms requiring interference arise in the non-contracted state of the uterus, and that when they do appear we may expect lesion of the uterus, or some constitutional condition, as the attack of an exanthem, excepting in cases where violent mental emotion has arrested uterine action; that when the continuous action has been well established the use of uterine stimulants, as secale, is calculated to increase the trouble; and that, unless in the intermediate conditions, we cannot expect much benefit from chloroform or opium, but that the indication is to remove by artificial assistance the uterine contents. He then proceeded to show how to detect the continuous action, and to diagnose it from the flaccid state of the uterus. After which he discussed the mode of treatment to be adopted in the latter case, and the results of employing the forceps in the torpid condition of the uterus; and showed how to avoid the tendency to post-partum inertia in those cases where it is considered desirable to deliver.

At the end of the paper some remarks were made upon the mode of classification of abnormal labour in connexion with the title of the paper; and suggestions were thrown out to simplify the mode of treating the subject.

The President remarked that the author of the valuable paper just read, while alluding amongst others to his (Dr. Davis's) classification of difficult labours and their division into "powerless" and "obstructed," seemed to think that he limited the term "powerless" chiefly to the first stage of the function; whereas his work showed that he applied the term equally to the first and second stages of labour, as experience teaches us we must so apply it. He did not employ the term powerless in "obstructed" labours, because absence of parturient action in them was not an essential element: it might or might not be present, and when so, either as a conservative element in the face of an obstacle, a safeguard against injury to the mother and her offspring, or, as in other cases the effect of exhaustion from long protracted but fruitless efforts and their attendant suffering.

After some remarks from Dr. Barnes and Dr. Graily Hewitt, expressive of their high opinion of the practical value of Dr. Hicks's paper.

Dr. Martyn desired to know whether Dr. Hicks met with that hard, tender state of the uterus, with constant uterine action, which he said indicated obstruction to the passage of the child, at an early stage of the obstruction as well as in later stages.

Dr. Cleveland so fully concurred in the propriety of artificial delivery, when the natural efforts seemed decidedly unequal to the task, that he was reluctant to make a remark that might appear opposed to that course; but he had formerly seen cases of exhaustion where the rhythmical pains had merged into continued ineffectual sub-contraction, and where a full dose of opium, by procuring sleep had been followed by restoration of power, and not unfrequently the uterus had awakened to its ordinary and successful function of expelling the fœtus.

Dr. Rogers agreed with Dr. Cleveland that in some cases a full dose of opium was of essential service, as it induced sleep, to be followed by renewed uterine efforts and speedy delivery. But this could only be useful when there was no serious impediment to the labour, or want of harmony between the fœtal head and the pelvis. In such cases Dr. Rogers believed in the necessity of early interference, and when the natural pains gave way to a state of continuous contraction, he agreed with Dr. Hicks that it was time, without further delay, to bring the labour to a conclusion.

Dr. Hicks, in answer to the various speakers, said that the paper was not intended to be exhaustive. What he wished to show was the value set by various authors on the term "powerless labour," and he had very great difficulty in bringing the matter into a presentable form. He also was anxious to call attention to the constant occurrence of the continuous action which was the cause of the exhaustion in cases of so-called "powerless labour." In answer to the question of Dr. Cleveland regarding the employment of opium, he thought that, although in the early stages of this action opium in small doses might do some good, and by chance might cause relaxation, yet he had no hesitation in saying that, when the action was once confirmed, opium did more harm than good; it destroyed what little remained of the rhythmical pains, and then the child was helplessly held in the uterus—it died, decomposed and destroyed the patient by the poison so engendered. He had seen many instances of this. Extraction, under these circumstances, was the proper plan. In answer to the President he said he had not intended to imply that he did not recognise the "powerless labour" as occurring in the later stages. On the contrary, what he had said in the paper was that the special chapter on "powerless labour" referred to the first stage—contrary to some others. He did not dispute the term; he merely wished to show the variation on the subject.

# Editorial.

## RECENT PHYSIOLOGY.

It is so long before medical readers in the midst of the duties of practice receive a systematic statement of physiological discoveries, that we may do worse than indicate, for their benefit, the general drift of recent physiological research. Our readers will find a fuller indication of this than we have space for, in the *Journal of Anatomy and Physiology* for November, 1867, conducted by Dr. Humphry, of Cambridge, and Dr. Turner, of Edinburgh. The Physiological Report to which we are indebted, is written by Dr. William Rutherford, Dr. Arthur Gamgee, and Dr. Fraser. We must chiefly notice those subjects which have a more obvious and practical bearing on Medicine.

It would be very interesting if physiological chemists would explain to us the mystery of the bronzed skin in diseases of the supra-renal capsules. There is a glimmering of light in this direction in the experiments of F. Holm, who, in the alcoholic extract of 650 grammes of the supra-renal capsules of the ox, has found, amongst other substances, a coloring matter, insoluble in ether, alcohol, and chloroform, which the author thinks identical with the pigment of bronzed skin. "The author (Holm) believes that this coloring matter does not exist performed in the capsules, but is due to the oxidation of a colorless chromogen."

The Physiology of Respiration is furthered by the experiments of Pettenkofer and Voit, made with a view to determine the extent to which the respiratory functions vary during the day and the night. Before noticing these, we may speak of the kindred experiments of Dr. L. Hermann, though they go to invalidate the later views of physiologists as to what we may call the respiratory function of the tissues. According to these views the chief seat of the respiratory process—the absorption of oxygen and the exhalation of carbonic acid—was the tissues themselves. ***Every organized tissue, and even every organic substance, when in a recent condition, was supposed to have the power of absorbing oxygen and discharging carbonic acid.*** G. Liebig, for example, found this to be the case with recently prepared muscles of frogs freed from blood. (Dalton's Physiology.) Hermann's researches, however, do not confirm this finding. . Amongst the most remarkable of his conclusions is this: "that the gases of muscles are quite free from oxgen." If he be right it is scarcely proper to speak of the respiratory process of muscles. It is too soon, however, to conclude that Liebig and numerous other physiologists on this point are wrong and that Hermann is right. The experiments of Pettenkofer and Voit have respect not so much to the seat of the respiratory process as to the fluctuations in the amount of oxygen absorbed and of carbonic acid given out. They found in a first set of experiments that "the interchanges of gas affected by respiration go on differently by day and by night, so that the greater part of the oxygen absorption takes place by night, and the greater part of the carbonic acid elimination takes place by day.

Work has scarcely any immediate influence on the oxygen absorbed during the day, although it has a great immediate influence on the amount of carbonic acid eliminated." These results are full of physiological and hygienic interest; but, as regards the differences in the chemistry of respiration of the day and night periods, confirmation is required.

The experiments of Pettenkofer and Voit include another observation, which at the present time is of unusual interest—namely, this: "The excretion of urea is not increased by work, although this be long sustained." This observation is quite in accordance with the recent researches of Fick, Parkes, and others, and has great value as a contribution to the formation of a right theory of muscular action. Pettenkofer and Voit found that the amount of urea excreted was slightly *less* on the day of labor than on the day of rest. As recent physiological chemistry is so concurrent upon this point we cannot do better than give Dr. Parkes's theory of muscular action.

> "When a voluntary muscle is brought into action by the influence of the will, it appropriates nitrogen and grows; the stimulus, or the act of union, gives rise to changes in the non-nitrogenous substances surrounding the ultimate elements of the muscular substance, which cause the conversion of heat into motion. The contraction continues (the will still acting) until the effete products of these changes arrest it; a state of rest ensues, during which time the effete products are removed, the muscle loses nitrogen, and can again be called into action by its stimulus."

Under the head of the "Physiological Actions of Medicinal and Poisonous Substances" are French and German accounts of the physiological action of bromide of potassium—a remedy which has of late years come into extensive use and great reputation for its effects in epilepsy. M. J. V. Laborde administered it to frogs, which, after manifesting slight general excitement and somewhat tetanic movements, showed weakness, and then a condition of flaccidity, during which reflex action was entirely abolished; but the power of voluntary motion was retained long after this. The heart was but slightly affected, and continued to contract for several hours after the loss of reflex power. Laborde concludes that bromide of potassium has no special action on the heart, muscles, encephalon, or nerves; but that it mainly and primarily influences the spinal cord. Eulenburg and Guttman caused death in rabbits in from ten to forty minutes by giving thirty to sixty grains either by the stomach or by hypodermic injection. A smaller, non-poisonous dose produced paralysis and cardiac irregularity. One or two grains injected into the subcutaneous tissue of frogs produced paralysis in from ten to fifteen minutes. Neither bromine alone, nor bromide of sodium and of ammonium, produced similar actions.

The mode of action of chloroform, sulphuric ether, and amylene is still undermined, if we may judge from the discrepant physiological conclusions of recent physiologists. According to Bernstein, chloroform acts on the sensory nerve-cells—not on nerve-fibres. Professor Ranke states that these substances paralyse the terminations of the motor nerves, and coagulate myosine (muscle-fibrin). It also coagulates nerve-albumen. From experiments on the lower animals, Bernstein concludes that ether is a less dangerous anæsthetic than chloroform. An entirely different theory of the production of anæsthesia is given by Dr. Faure (*Archives Gén de Méd.*, May, 1867). Chloroform, according to this observer, in virtue of its power of coagulating albumen and similar substances, so modifies the mucous membrane of the air-passages as to render the pulmonary surface with which it is brought into contact impermeable to air; so that anæsthesia is just a part of asphyxia. The following is a curious experiment in support of this most doubtful theory:—

> "A caoutchouc tube, having one end attached to a vessel containing chloroform, was passed down the trachea, *beyond its bifurcation, into one of the bronchi*, and a large quantity of chloroform was so inhaled by an animal, but no anæsthesia was caused. The tube was then so far withdrawn that it did not extend to the bifurcation, and after a few inhalations complete anæsthesia ensued. During this condition it was again advanced *beyond the bifurcation into a bronchus*, and, although chloroform continued to be inhaled, the anæsthetic condition gradually disappeared...... Carbonic acid was found to act in the same way."

We have exhausted our space without any reference to many researches of great interest. Amongst others, we must just specify the experiments of some Dutch physicians, performed with a view to ascertain whether or not cholera be communicable to the lower animals. They were made during the severe epidemic of 1866 in Utrecht, on pigs, dogs, monkeys, rabbits, poultry, pigeons, frogs, and fishes; and the conclusion arrived at is *that animals are not susceptible of cholera*—a conclusion at variance with the recent and striking experiments of Dr. Sanderson, whose most characteristic results were in the case of white mice, which apparently were not experimented on by the Dutch observers.

If it is discouraging to find that physiology still gives an uncertain sound in regard to phenomena of great practical interest in medicine, it is satisfactory to know that these phenomena are under the keenest critical observation, which must soon eventuate in more positive knowledge.

## ARTERIAL COMPRESSION IN INFLAMMATION.

THE subject of digital compression of large arteries for the cure of phlegmonous or articular inflammation of the limbs, spontaneous or traumatic in its origin, is treated of at length, and with much enthusiasm, by M. le Dr. Vanzetti, of Padua, in recent numbers of the *Gazette des Hôpitaux* (Nov. 21st and 23rd). The practice is full of interest, whether we regard its remedial effects and the physiological significance of them, or the extreme gravity of the cases in which these effects are said to be gained. Dr. Vanzetti suggested this practice nearly ten years ago; and though it has been tried more or less by various eminent surgeons in the principal countries of Europe, and generally with great success, it is still, in the opinion of its author, too little known and too little practised. We the more willingly give prominence to the subject as Dr. Vanzetti makes out a strong case for his views—at least supports them with strong cases and strong statements from others; and, moreover, because English surgeons have carried out the principle of the practice to a bold length, neither contemplated nor approved by Dr. Vanzetti, but none the less interesting, physiologically, on that account. We refer to the ligature of the femoral artery by Mr. Little in a case of acute traumatic inflammation of the knee-joint, on the suggestion of Mr. Maunder. Indeed, the case of Mr. Little and that of Mr. Jackson, have apparently had much to do with the revival of Dr. Vanzetti's interest in the matter, and induced him to bring it again before the profession. As a specimen of the statements with which he introduces his clinical illustrations of this subject, we may give the following strong opinion of Neudorfer, given in a report on the surgical diseases of the garrison of Prague:—

> "In the external idiopathic inflammations, and in those which follow operations, we have entirely abandoned the ordinary antiphlogistic treatment—bloodletting, calomel, nitre, &c.; and, as a unique treatment, we have employed only the digital compression. Tried in over a hundred cases, we have acquired the conviction that it surpasses in efficacy every other treatment; the heat, the redness, the pain, are removed soon, even in employing only intermittent compression. Thus the digital compression proposed by Professor Vanzetti is ever acquiring more confidence and credit. We believe that we ought to recommend it very warmly. It serves, moreover, in many cases, to diminish very copious purulent secretions."

As an English illustration of the practice, our readers may well refresh their memory with the case of Mr. Jackson, of the Sheffield Hospital, in which the compression was practised by the tourniquet. As we lately reported, a case of severe traumatic inflammation of the hand is under the care of Mr. Moore at the Middlesex Hospital, in which the compression of the artery was procured by acupressure. The treatment here was quite successful. Vanzetti, in his second paper, details a very bad case of phlegmonous erysipelas of the left arm, following a probably poisoned wound acquired by a veterinary surgeon in delivering a cow, and threatening gangrene, in which very rapid cure followed compression by the fingers of two intelligent friends.

The practice, we repeat, should have an extensive trial. According to Vanzetti and Neudorfer, digital compression is quite effective for the purpose. Much depends on this point; as, if ligature or even acupressure of a large artery is necessary, a serious element of difficulty and danger is imported into the case. Nothing can be simpler or more harmless than the digital compression.

We have not space to remark on the physiological interest of the facts, supposing them to be facts—the great benefit of cutting short the main supply of blood to a badly inflamed part, and so saving its vitality. It differs from bleeding measures in that, while it directly diminishes the blood going to an inflamed part, it preserves the whole amount of blood in the body.

# Medical Annotations.

"Ne quid nimis."

### COMPLETE DIVISION OF THE MEDIAN NERVE, WITH PRESERVATION OF SENSIBILITY.

There is at present, in the wards of Professor Richet, at La Pitié, a case which is exciting much interest, and giving rise to much speculation, on account of the numerous physiological problems that it involves. The history of the case is, briefly, as follows:—On the 23rd of October, the patient, a female, aged twenty-four, fell heavily on some sheets of copper which were standing by, and was severely wounded at the wrist. She was taken to the Hôtel Dieu, where the radial artery was tied by the house-surgeon. Twenty-two hours after, M. Richet examined the wound. It measured six centimetres across the wrist, and was situate at about six centimetres above the radio-carpal articulation. The superficial muscles were found divided. The radial artery was completely cut through, *as was the median nerve*, and the flexor profundus itself bore marks of injury. Yet sensibility of the lower end of the nerve was unimpaired. The patient screamed with pain as Mr. Richet excised a minute portion of it for microscopical examination. All the parts to which the median nerve is distributed had likewise retained their sensibility.

Such are the most prominent features of the case. Obviously the main point, around which the whole question revolves, concerns the accurate establishment of the fact that the nerve was really and completely severed. With M. Richet, who owes his reputation as much to his skill as an anatomist as to his surgical abilities, this point has been placed beyond the shadow of a doubt. Carefully examining the different tendons which occupied the wound, M. Richet discovered the exact situation of the median nerve, picked out the extremities, and united them by means of a double suture, one anteriorly and the other posteriorly, while he observed that the muscles beneath had likewise been involved in the wound. A minute portion of the lower extremity of the nerve, having been placed under the microscope, was found to be made up of nervous elements. Then, the tendons of the severed muscles had undergone some retraction, whereas the ends of the nerve had remained in a normal state. The muscular contractility of the parts supplied by the nerve was completely lost, and the application of electricity failed to elicit any contraction,—a fact to which M. Duchenne de Boulogne, who instituted the experiment, attaches great importance, as furnishing a conclusive argument in favor of the complete division of the nerve. Further, a few days after the closure of the wound, the patient experienced those peculiar sensations indicative of a healing process going on in the nerve. If we are, then, to admit that the median nerve was really and entirely divided, how are we to account for the phenomenon of preserved sensibility, both in the lower end of the nerve, and in the parts to which it is distributed?—a phenomenon observed and examined with great care and exactness by Professors Richet, Denonvilliers, Pajot, Michel (of Strasbourg), M. Duchenne de Boulogne, and many others. The existence of such an anomaly in the anatomy of the median nerve as a second branch of it taking its origin above the line of the wound, and descending in a deep situation, can scarcely be admitted, if the absence of all precedent in the writings of anatomists be a conclusive argument. We seem therefore to be reduced to the assumption of some sort of anastomosis between the injured nerve and the other nerves of the hand. Such is the hypothesis upon which various theories are already being built in the columns of our French contemporaries, and which are propped up by extracts from the French physiologists, Claude Bernard, Vulpian, Longet, Magendie, Duchenne, &c. We leave the question at this point, purposing to revert to it when M. Richet shall have published a complete and authenticated account of the case, and shall have set forth his own explanations, which until now he has withheld.

### THE UNIVERSITIES AND EDUCATION.

The Bishop of Oxford, a few days ago, presiding at the distribution of prizes to pupils of schools in the metropolitan and home districts, praised the system of university local examinations, at the expense, it seems to us, of the universities themselves. "In the earlier days of English literature and political existence, when the great universities were founded, they did fulfil in the main what that ambitious name implied, and placed themselves at the head of the common life and action of the nation. The various branches of professional acquirements—law, physic, mathematics, and philosophy—were thus brought within the reach of all, and paths were opened up by which the children of the poorest man, if they had those gifts within themselves—those intellectual gifts which proceed from God alone,—might assert their claim to take their places among the highest educated classes," &c. We cannot prolong the quotation; but the argument is to this effect,—the universities no longer being all this, the university local examinations are a great mercy, for which we should be thankful. We may be either ungrateful or obtuse, but we really cannot accept the university local examination as a substitute for the universities themselves. Can any censure be more severe than this eloquent description of the universities,—"worthy of their ambitious name, at the head of the common life and action of the country," in the past tense. Why are they not all this still? It will puzzle most people to say why. The bishop goes on with the mournful contrast between former and present times,—"Now, the facilities which existed for entering a university life by means of scholarships and grammar-schools had to a great degree ceased to exist." Is the want of scholarships really the difficulty? or is it not the case that there are plenty of scholarships, but that the kind and degree of education needed to take them is impracticable to the men who have to do with "the common life and action" of the nineteenth century. If we are rightly informed, in some of the colleges there are large accumulations going on in the scholarship funds, because properly qualified candidates do not present themselves. Surprise and regret have been expressed that a greater number of medical students do not take scholarships, and so facilitate for themselves a university education. But medical students will never be able to take scholarships on the present terms. They have to do with the "common life and action of the nation." And if the universities cannot get rid of their scholarships by the influx of men who have had the training only to be got at the best public schools, it seems unreasonable to expect any large number of medical students to be able to take them. We are favorable to a good sound preliminary education of medical students, and to the universities pitching high the standard for their degrees; but we do not see that medical students would be made better surgeons and physicians by learning the art of Greek iambics and Latin hexameters. The sooner the universities "place themselves at the head of the common life and action of the nation" again, and put "law, physic, mathematics, and philosophy within the reach of all" the better.

### LEGISLATIVE OPPRESSION.

The *Spectator* has a logical and caustic article on the new Act for regulating the traffic of the metropolis, which has lately come into operation. The sixth clause of the Act *de facto* suppresses the costermongers, and all other street purveyors who cannot be incessantly "moving on"; and this clause (which benefits nobody but the shopkeepers) will, if carried out, throw from thirty to forty thousand men, "notoriously the bravest and quickest witted among our population, men living from hand to mouth on daily profits," helplessly into the streets. As the *Spectator* justly remarks, costermongering, so far from being a nuisance, is a pursuit of great benefit to the community; it enables thousands of men, women and children who would otherwise be a burden to the parochial rates to earn an honest and independent subsistence; it not only acts as a salutary check on the otherwise powerful monopoly of trade, but it supplies an ubiquitous and efficient method of distributing throughout the courts, mews, and bye-lanes of this vast city the rebundant produce of the markets, which otherwise would become a dead-weight of waste. In a sanitary point of view the costermongers perform a most important public service, and one which fairly entitles them to support at the hands of the Government, the press, and the community at large. But for them the poor would rarely taste fruit, or fish, or fresh vegetables, and the privation of these essential articles of a healthy diet would soon be apparent in increased sickness and mortality. As it is very well put,—"To suppress their activity is like suppressing all the little veins, in order that the big veins may be surcharged; an experiment which has usually among its results death." Surely, if the costermongers have been found to impede the traffic in the more crowded thoroughfares, that might have been obviated by a regulation confining their operations to the side streets out of the main routes. It is quite certain that, if the costermongers are suppressed, measures will have to be taken for providing public markets in the different quarters of the metropolis, so as to bring fruit and vegetables within reach of the poor, although it is very doubtful if that plan would be as successful as the peripatetic markets which bring the commodities home to their doors.

### VENTILATION OF SEWERS.

Mr. G. A. Rowell, of Oxford, suggests a plan for the removal of gases from sewers by means of air-pumps, which may be directly in contact with the sewers, but may otherwise be fixed at any convenient place, connexion with the sewer being obtained by an air-tight pipe. Mr. Rowell contends that no system of ventilation merely by high shafts or pipes can render houses connected with sewers free from risk of contamination by sewage gases, for the reason that a gas pressure sufficient to force an escape at the height of thirty or forty feet, or higher, would be sufficient to force an entry into any house with defective water-closets, pipes, or waste-water drains communicating with the sewers. In times of severe cold, the exclusion of external air and the high temperature maintained within disposes a house to act as an air-pump to suck-in gas from the sewer. Judging from the effects obtained from condensed air blast-furnaces, Mr. Rowell calculates that, with a single cylinder, 144,000 cubic feet of gases could be drawn per hour from the sewers, and these gases might be forced into a discharging shaft carried to any necessary height or distance, so as not to be a nuisance to the neighborhood. The same plan would remove whatever noxious vapors might be generated in underground railways; and Mr. Rowell considers that the principle admits of such general application that manufactories, workshops, assembly-rooms, courts of justice, hospitals, or even private dwellings, might be ventilated in accordance with it. Where steam power is already in use, the ventilating apparatus might readily be applied with little cost. "By pipes of the necessary size, distributed over a building on a plan similar to those for gas, every part, when required, could be brought into communication with the pumping chamber, and the appliances for ventilation could thus be as readily at hand as gas for lighting purposes, and under similar control, as the communication with each room could be more or less closed at will, and, when needed, the whole pumping power could be made to act entirely on any department." One of the advantages of the system would also be, that the products thus removed would be under control, and gases and noxious emanations of all kinds might be rendered innocuous before they were liberated into the atmosphere. It is even suggested that volatile substances collected in this way might be fixed, and their fertilising or other qualities utilised.

### THE HOSPITALS OF RUSSIA.

At the last meeting of the Kent Medico-Chirurgical Society, Dr. Carr, of Blackheath, narrated his personal observations on the hospitals of St. Petersburg, Cronstadt, and Moscow: including a sketch of medical education in that country. Dr. Peacock, of St. Thomas's Hospital, supplemented Dr. Carr's remarks.

The hospitals generally are built on the corridor principle; are very large—one containing 3500 beds,—have abundance of ward space, but are badly ventilated. The medical and surgical treatment was found to be in keeping with the accepted views at home; the diet generally being much lower than is given in England. Sleep or indulgence in bed appears to supply a considerable check upon the otherwise tendency to waste. The rate of mortality is high.

Russia being a military despotism, all the hospitals are under military authority, and supported by the State. Medical education is directed by the Government. A large number of students, after passing the Gymnasium, are provided for by the Government, each receiving, besides a free admission to lectures and hospital practice, thirty-five roubles per month. On completing their studies, which extend over from four to six years, they are obliged to enter the public service for a given number of years. This system of State medical education does not answer. The consequence is that many Germans are found occupying posts in the army and navy.

Russia, unlike the rest of Europe, has no middle class. The upper classes are highly educated, and the lower are devoid of education, and, as a rule, are very intemperate. A misguided religious element is a great barrier to the spread of scientific medicine.

The renumeration of medical men is usually by an annual fee. There are several distinguished English medical practitioners in St. Petersburg, which has a population of 500,000. Sir James Wilie, Bart., established the chair of Medicine in St. Petersbug in 1800, until which time there had been no medical education there.

At some future time we hope to give a more detailed report of this interesting paper.

### A MONSTER TUMOUR.

On the 20th November, the theatre of University College Hospital was literally crammed from top to bottom by visitors from all parts of London who had come to see Mr. Christopher Heath remove an unusually large tumour of the lower jaw. The patient was a man, thirty-two years of age, whose appearance was most extraordinary from the enormous enlargement of the lower part of his face. An idea of this may be gained by mention of the fact that a line taken round the chin, from one ear to the other, measured 19¼ in.; and from the lower lip (which was dragged down) to the pomum Adami, 13 in. Mr. Heath made a vertical cut through the lower lip at its centre, extended it nearly to the thyroid cartilage, reflected the flaps, sawed through the body of the left jaw just behind the second molar tooth, disarticulated the head of the right jaw, and removed, in this way, a mass of osteo-sarcoma weighing 4 lb. 8 oz. The operation was performed with singular expedition and facility, and, but very little blood was lost. Mr. Heath was assisted by Mr. Erichsen, Sir Henry Thompson, Mr. Marshall, and Mr. Berkeley Hill, who illustrated, it seemed to us, exactly what good assistance should be. Mr. Clover managed the chloroform (in spite of the great difficulties of the case) so cleverly that the patient was kept under its influence throughout the operation. We shall shortly publish a full account of this remarkable case. It may be noted that the tumour is the largest of its kind on record since Mr. Syme took one away, of the same weight, in 1828.

### THE SUCCESSORS OF MM. VELPEAU AND NELATON.

M. Gosselin and M. Jarjavay have respectively taken possession of the Chairs of Clinical Surgery which the demise of Velpeau and the retirement of M. Nèlaton had left vacant at La Charitè and at the Hôpital de la Clinique. There was a large attendance at their introductory lectures. Doubtless many of the visitors were curious to see the professors inaugurate their teachings in the chairs which their predecessors had so ably occupied; and it is but justice to say that both obtained a complete success. To judge from the high satisfaction which was evinced by the attendance, it may be anticipated that the surgical teaching of La Charité and La Clinique will continue to enjoy the favor of the students, and to attract as large a number of visitors as habitually thronged the wards of Velpeau and Nélaton. M. Jarjavay and M. Gosselin were both well known as accomplished surgeons and good lecturers before becoming titular professors of clinical surgery. Both also were already professors at the School of Medicine, and had evinced great ability in the fulfilment of their duties, the former as Professor of Anatomy, and the latter as Professor of Surgical Pathology.

### AN IVORY TUMOUR OF THE UPPER JAW.

On the 30th November Sir Wm. Fergusson removed a very remarkable tumour, of the upper jaw from a healthy young man aged twenty-one. The deformity produced by the growth was very considerable, the eye being dislocated to the outer side, but still retaining its power of vision. The tumour was of a dense osseous nature, the greater part of it being as hard as ivory. It was of twelve years' growth, and was of the size of the clinched fist. Thanks to the exertions of some adventurer, a portion of skin covering the tumour had been destroyed by caustic, in the vain hope of thus getting rid of the disorder. The operator experienced unusual difficulties in the progress of the operation, owing to the extent and density of the mass to be removed. He succeeded at length, however, in isolating the growth and excising it with very little loss of blood. We regret to hear that the patient died rather suddenly on Tuesday morning.

Sir Wm. Fergusson's patient reminded us forcibly of a case recorded by Mr. Hilton in the first volume of the "Guy's Hospital Reports," which was that of a man aged thirty-six, who for twenty-three years had suffered from a large bony tumour of the left upper jaw, which eventually spontaneously separated, leaving an enormous chasm behind it, which is represented in a drawing accompanying the paper in question. In that case the ivory-like mass weighed 14¼ oz. The eyeball had been displaced and destroyed seventeen years before the tumour separated. In Sir Wm. Fergusson's case surgery interfered at an earlier date, and the patient, had he lived, would have retained the use of this important organ.

### A CHAPTER OF ACCIDENTS.

Accidents, and formidable surgical operations, like misfortunes, seldom come singly. Every house-surgeon knows the tendency there is at times to a "run" upon casualties. Such has been the case lately at St. Thomas's Hospital. In the course of twelve days the following surgical cases presented themselves for treatment:—Under Mr. Solly, two scalp wounds, fractured femur, hip-joint disease, fractured ribs, two inflamed bursæ, two dislocations, a sprain. Under Mr. Clark, a scald, two concussions, cut-throat, fractured ribs with lacerated lung, scalp wound, hæmorrhoids, chronic corneitis, carbuncle, phlebitic abscess, abscess in ham, hip-joint disease, knee-joint disease, ovarian tumour (operated upon), fistula in ano. Under Mr. Simon the following: a cut-throat, crushed feet, scalp wound, fractured femur, fractured tibia and fibula, compound fracture of skull (trephined), dislocated femur, burst vein, eroding ulcer of cheek simulating epithelioma, stricture of rectum, scirrhus of breast (operation), knee-joint disease, fatty tumour of buttock. Twenty of the cases in this list were accidents.

### THE CAPRICE OF FASHION.

The mutations of fashion in their influence upon health have frequently formed the subject of comment in our pages; but statements recently made in the *Builder* illustrate another effect of the justability of *la mode* in the paralysis of a branch of industry which it had once called into existence. In days not remote, it was the custom of our wives and daughters to protect the head by a covering more or less complete, and it was then that the straw-plait manufacture grew and flourished. But in the microscopic object which ladies are now pleased to call a bonnet (?), the quantity of material of any sort is reduced to such an infinitesimal amount that the straw-plait workers find their occupation gone. At Luton, it is said, there are upwards of five thousand women of all ages who are "three parts starving," and have mainly to be supported by the poor-rates, which have actually reached *twelve shillings in the pound.*

### THE CLIMATE OF NEW ZEALAND.

It is probable that the British army engaged during the late war in New Zealand enjoyed better health, and sustained fewer losses, than in any previous campaign. Dr. Mackinnon attributes this to the very beautiful and salubrious climate; and he adds, that the change which it effected in the men of regiments arriving from India was most marked. Sickly and sallow-complexioned on arrival, they soon lost the marks of ill-health engendered by tropical service, and regained health and strength while undergoing arduous service in the field. The late Staff-Surgeon Dr. Thompson, in his admirable "History of New Zealand," pointed out the importance of that country as a senatorium for our Indian invalids. It is not a little curious that there is an entire absence of malaria in New Zealand.

### THE HEALTH OF GARIBALDI.

We are informed that the indisposition under which General Garibaldi is laboring is not of a serious character, but is the natural result of fatigue following the great mental and physical efforts which he has made of late. Like most enthusiastic and large-hearted men, the General felt considerable disappointment at the disastrous termination of his schemes, and he likewise was much distressed at the sufferings to which his followers were exposed.

Although the position occupied by Garibaldi is an elevated one, the neighborhood of Spezzia is said to be malarious. He has been visited by Professors Zanetti and Chinozza, and through their advice the General is to be transferred without delay to Caprera.

### THIRST IN THE EARLY STAGES OF CHOLERA.

In the Report by Mr. Rogers on the epidemic at Ystalyfera he expresses a strong opinion that in the early stage of vomiting, indulgence in fluids only aggravates the symptoms and causes exhaustion to supervene more rapidly. Referring to the excessive thirst noticeable in persons attacked, he says that in no single instance where the patient was allowed free use of water or other fluids during the early stage of vomiting did recovery follow. On the other hand, where the abstinence was more or less complete, so was the patient's case more or less favorable. If the desire were restrained for a few hours until the stomach had become tolerant, water could be safely and beneficially given.

### QUARANTINE ARRANGEMENTS AT HAVRE.

It is stated in the *Journal of the Society of Arts* that, since the establishment of a regular line of steamers between the United States and Havre, the French Government has been very solicitous in regard to the prevention of the introduction of epidemic diseases into the port. Each ship as it enters Havre is now boarded by an officer of health, who sends it to undergo, if necessary, quarantine at the lazaretto of Tatihon, in the Manche. A sanitary department is to be at once created on a similar plan to that which exists at Marseilles; and at the mouths of the Gironde and the Loire a large lazaretto is to be erected, to consist of two parts: the one for the sick, and the other for passengers "under observation" by the sanitary officials.

### MALIGNANT PUSTULE IN RUSSIA.

We learn that during the summer months malignant pustule was prevalent in the government of St. Petersburg and Novogorod, men as well as cattle and horses suffering. An official return states that, in the government of Novogorod, the number of fatal cases to the 15th of June was as follows:—Men, 39; horses, 1309; horned cattle, 756. It may also be noted that in the autumn a number of cases of epidemic cerebro-spinal meningitis occurred in St. Petersburg.

The Board of Health of the city of Troy (New York State), in their last report, refer to the necessity for an effective and thorough system of vaccination (to the benefit of which the citizens, however, do not appear to be fully alive); and they recommend an annual house-to-house visitation by competent physicians, in order to discover who are unvaccinated. We are glad to find that some remarks which have appeared in The Lancet in favor of the practice of holding inquests on all unvaccinated persons who have died from small-pox have commended themselves to our brethren in the city of Troy.

## Reviews and Notices of Books.

*Fecundity, Fertility, Sterility, and allied Topics.* By J. Matthews Duncan, A.M., M.D. Edinburgh: Adam and Charles Black. 1866.

We owe many apologies to Dr. Duncan for having so long delayed a notice of his most valuable and important work. The truth is, it contains so much matter needing calm and attentive study that we have been waiting for leisure to read, mark, learn, and inwardly digest the three hundred and sixty pages devoted to the analysis of facts from which deductions of a very remarkable and interesting character in reference to the laws affecting the reproduction of the human species have been arrived at. In truth, every one of the numerous chapters into which the author has classified his materials well merits distinctive critical analysis, and we are not without hope of so dealing with certain of them as opportunities may arise.

That with all the elaborate machinery of registration in operation for thirty years in England,

and for twelve years in Scotland, data for determining such a moot point as the relative power of reproduction among women at different ages, and under other conditions variable within ascertainable limits, should be entirely wanting for England and only procurable for one year in Scotland, is not a little astonishing; but it is, nevertheless, a fact recorded by Dr. Duncan. The English birth-schedules contained nothing to throw light on some of the particulars needful to be ascertained; but when the systematic registration of births was established in Scotland the schedule in use exacted from the public a variety of interesting details—a circumstance which gives to the registers for 1865 (the only complete year of their use prior to the adoption of a less comprehensive schedule) an extraordinary value. Dr. Duncan had further to confine his inquiry within limits compatible with the exigencies of time, labor, and expense; and hence his selection of the registers of Edinburgh and Glasgow, which yielded a collective observation of 16,593 children, all *legitimately* born in 1855. A year's birth statistics of these two cities, then, constitute the foundation upon which, with a painstaking and acute analysis, has been erected a superstructure of logical inference of the most practical kind, calculated especially to direct attention to matters that have hitherto remained in comparative obscurity.

Part I. of Dr. Duncan's investigation relates to the determination of the comparative fertility or productiveness and fecundity of women at different ages; and, in order to avoid confusion, he defines fertility or productiveness to mean "the amount of births as distinguished from the capability to bear;" fecundity, meaning the demonstrated capability to bear children, "implies the conditions necessary for conception in the woman of whom its variations are predicted. ......In short, fertility implies fecundity, and also introduces the idea of number of progeny; while fecundity simply indicates the quality without any superadded notion of quantity." The general conclusions under this first head are—1. That the great majority of the population is recruited from women under thirty years of age; but that the mass of women in the population between thirty and forty contribute a larger proportional share to the general fertility than do the women between twenty and thirty. 2. That the wives in the population taken collectively show a gradually decreasing fecundity as age advances; but that in individual wives the degree of fecundity increases till about the age of twenty-five, and then diminishes. The individual fecundity is described as forming a wave which, from sterility, rises gradually to its highest, and then more gradually subsides again to sterility.

In Part II. the author treats of the weight and length of the newly born child as indicative of the state of fecundity, or of the generative functional vigor, of the mother; the data in this instance being drawn from the records of 2070 pregnancies, with 2087 children, in the Edinburgh Royal Maternity Hospital. Dr. Duncan's view is that increase of weight and length of the child is in direct dependence on the age of the mother; and that a careful study of the subject goes to support the doctrine that the vigor of the female reproductive system waxes till about the age of twenty-five, and then wanes. Professor Hecker's researches confirm the influence of age, but they indicate an additional element in the number of the pregnancy.

Part III. is devoted to the elucidation of some laws relative to the production of twins, as to which the following are among the conclusions arrived at:—1. The largest number of twins is propuced by women between the ages of twenty-five and twenty-nine. 2. The mean age of twin-bearing mothers is greater than that of mothers generally. 3. Newly married woman are more likely to have twins the older they are. 4. A woman is more likely to have twins in each succeeding pregnancy than in the former pregnancy; the first pregnancy, however, forming an exception. 5. It is probable that twin-bearing women have larger families than women uniformly uniparous. It is stated that among women the birth of twins occurs once in about eighty deliveries.

In the numerous sections of Parts IV., V.. and VI. are discussed the laws of the fertility of marriage: it is designated, "sustained fecundity," or the fertility of women cohabiting with men during the child-bearing period of life,—and also those of sterility; the mathematical skill of Professor Tait having been enlisted for the expression by certain curves and formulæ of the laws demonstrated by Dr. Duncan. A little rubbing up of one's knowledge of the signs and symbols of algebraic notation is essential to an appreciation of Professor Tait's mode of arriving at the general law that "fecundity is proportional to the number of years a woman's age is under fifty;" and it would occupy much more space than we can now afford were we to attempt even a partial summary of the hundred pages wherein Dr. Duncan has gathered together a mass of statistics illustrative of the fertility of marriage under a multiplicity of circumstances as to age &c., the comparative fecundity and fertility of different peoples, and the probabilities of sterile marriage. Under this latter head we may, however, particularise one or two laws possessing a certain interest. 1. That the question of a woman being probably sterile is decided in three years of married life. 2. The older a fertile woman is at marriage, the older is she before her fertility is exhausted—that is, before the advent of relative sterility. 3. A wife who, having had children, has ceased for three years to exhibit fertility, has probably become relatively sterile—that is, will probably bear no more children, the probability increasing as time elapses. Dr.

Duncan says that these conclusions will help medical men to estimate "the utility of the many vaunted methods of curing sterility which are now much in vogue, and which, considering the nature of the condition to be cured, justly excite anxiety for the honor of the profession in the minds of its best friends."

We come now to the two important questions in reference to puerperal mortality discussed in Part VII. Does the number of a woman's pregnancy regulate in any degree the mortality to be expected from lying-in? Does the age of the child-bearing woman regulate in any degree the mortality accompanying this function? To the first of these questions it is answered that the mortality of first labours is about twice as great as in all subsequent labours put together, the fatality of puerperal fever being in the same proportion; and that after the ninth labour the risk of death increases with the number. The age of least mortality is near twenty-five years, and from that point it gradually increases with the diminution or increase of age, the age of greatest safety in parturition coinciding with the age of greatest fecundity. Assuming the correctness of these inferences, it is clear that, as Dr. Duncan observes, a comparison of the mortalities of lying-in institutions cannot justly be made unless the conditions of primiparity and age be taken into account.

In Part VIII. the author points out the ages within which women generally should enter the married state, if they are guided by physiological laws; and it is shown that as the period between twenty and twenty-five years is that in which marriage is found to be most secure of fecundity, and parturition attended with least danger, that is the best time for women to get married. This has reference to the safety of the mother; but it is found, also, that there is a greater survival of children born of women married between twenty and twenty-five than at any other ages, and thus there is another reason for the period selected.

Parts IX. and X. are devoted to the following propositions in reference to the duration of labour and pregnancy: 1. The mortality of women in parturition and childbed increases with the duration of labour. 2. The duration of labour is only an inconsiderable item among the many causes of the mortality of women in parturition and childbed. 3. That the real duration of pregnancy (the interval between conception and parturition) has not been exactly ascertained in any case. 4. That the average interval between insemination and parturition (commonly called the duration of pregnancy) is 275 days. 5. That the average interval between the end of menstruation and parturition is 278 days. 6. That neither of the intervals just referred to has a standard length, but varies within certain limits. 7. That there is evidence to establish the probability that real pregnancy may be protracted beyond its usual limits to the extent of three or four weeks, or even longer.

We have thus endeavored to convey to our readers a general impression of the characteristic of certainly one of the most interesting contributions to medical statistics which we have ever perused. We are not prepared at the present time to discuss critically many points as to which difference of opinion will arise. Statistics, as we all know, have a name for being convertible according to the fancy of the manipulator; and it might possibly appear on close examination that some of the data used by Dr. Duncan are rather more limited than we should consider safe for formulating laws on the abstruse and complicated functions of reproduction. We say this, however, not with the least intention of depreciating the value of Dr. Duncan's investigations. The want of sufficient data was the greatest difficulty he had to contend with, and the marvel is that he has been able so fully to establish as much as he has done. Not one of the subjects treated but has a peculiar interest for the medical profession; and we therefore very earnestly recommend the study of the book to our readers.

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*Clinical Illustrations of various forms of Cancer and of other Diseases likely to be mistaken for them; with especial reference to their Surgical Treatment.* By OLIVER PEMBERTON, Surgeon to the General Hospital, Birmingham. London: Longmans and Co. 1867.

So much attention has recently been directed to the minute anatomical characters of cancerous and other malignant growths, and to consideration relating to their development and histological connexions, that there is some danger of too much reliance being placed on the microscope, and not enough upon those naked-eye and general characters which alone can guide us in our clinical observations and lead to successful practice. The tendency of the volume now before us is, however, in rather the opposite direction, and one is tempted to regret that no accurate microscopical reports are given of the numerous valuable and interesting cases detailed by the author. The design of the work, as the preface truly states, is correctly expressed by the title; and as the result of many years' study in the wards of the General Hospital of Birmingham, the author has good reason to feel satisfied with the valuable store of clinical facts which he has succeeded in collecting and verifying. Some of the statistics respecting cancer, more especially those of scirrhus of the breast, are most important, and would tend to disprove certain prevalent ideas concerning the origin of this disease. Thus, out of 48 cases, only 6 were believed to have resulted from the effects of external violence; in 8 cases the disease followed, and was believed to have originated in abscesses of the breast; whilst in 34 cases no cause could be assigned. Again, in speaking of hereditary transmission, Mr. Pemberton states that "of 70 cases the previous existence of cancer in the family was unknown in 22, and of the remaining 48 there were but 6 cases in which any hereditary influence could be traced." It appears also to occur more frequently in married than in single females, in the proportion of 45 of the former, to 5 of the latter. The want of microscopic details is felt most in the chapters on Epithelioma, as here more especially it is all-important to determine the anatomical structure of the growth before any deductions can be drawn from the results of clinical observations. Mr. Pemberton's book is profusely illustrated with woodcuts and with large lithographics plates; but it seems to us that some of them are scarcely worthy of the general character of the volume, and some of the latter would have told their story even more effectively had they been represented on a smaller scale. The volume is, however, most sumptuously got up, and as regards paper and printing does credit to the publishers.

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*An Introduction to Pharmaceutical Chemistry.* By JOHN ATTFIELD, Ph. D., F.C.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, formerly Demonstrator of Chemistry at St. Bartholomew's Hospital. Post 8vo. pp. 447, with Plates. London: Van Voorst. 1867.

THE title of Dr. Attfield's book indicates very insufficiently the amount and character of its contents. It might be supposed, at first sight, that the work was specially intended for the pharmaceutical student; but it contains a most admirable digest of what is specially needed by the medical student in all that relates to practical chemistry, and constitutes for him a sound and useful textbook on the subject. Dr. Attfield, indeed, intends it as a laboratory guide for both medical and pharmaceutical students. The aim of the author has been threefold: first, to give concise data for a complete course of qualitative and quantitative analysis; secondly, to associate therewith simple experiments in imitation of the chemical processes in the British Pharmacopœia; and thirdly, to direct attention to principles and facts which the analytical and synthetical experiments are designed to illustrate. The work commences with a description of the general properties of non-metallic elements, and then follow in succession accounts of chemical force, and the general principles of chemical philosophy, under which head symbols, formulæ, equations, atomic weights, and quantivalents, are noticed. A description of the common and rarer metallic elements, their officinal preparations and tests, comes next. Dr. Attfield gives analytical charts for the detection of these metals. The acids are examined in a similar way, and then follow full directions for systematic analysis. Organic substances, their properties and behavior, are next considered; then the toxicological operations which are necessary to be conducted in cases of suicide, poisoning, and murder receive careful consideration; whilst the properties and reactions of alkaloids are fully described. Dr. Attfield calls attention in his preface to two features in the book,—the one the separation of reactions having a synthetical from those possessing analytical interest; and the other the addition of a large number of new reactions belonging to the former class. But this is not all the book contains. Morbid urine and calculi, officinal Galenical, and chemical preparations, are examined in separate chapters. A full account is given of quantitative analysis, including the measurement of temperature, and the nature and mode of determining specific gravity, volumetric and gravimetric analysis. Lastly, in the Appendix are found a note on dialysis, a series of valuable tables, and upwards of five hundred questions and exercises on the subject matter of the whole work. We thoroughly believe that the course of experimental study prescribed by this book will teach the student the principles of chemistry, will give him special knowledge concerning the application of that science to pharmacy, and impart sufficient help to manipulation to enable him to manufacture or analyse when necessary. We commend it to the notice of every medical as well as pharmaceutical student. We only regret that we had not the book to depend upon in working up the subject of practical and pharmaceutical chemisty for the University of London, for which it seems to us that it is exactly adapted. This is paying the book a high compliment.

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*A Treatise on Human Physiology.* Designed for the use of Students and Practitioners of Medicine. By JOHN C. DALTON, M.D., Professor of Physiology and Microscopic Anatomy in the College of Physicians and Surgeons, New York; Member of the New York Academy of Medicine, of the National Academy of Sciences of the United States of American, &c. Fourth Edition, revised and enlarged, with 274 illustrations. Philadelphia: Henry C. Lea. London: Trübner and Co, 1867.

THIS is the fourth edition of an excellent book. It is so good that we are occasionally surprised that it is not better. We mean that it is generally so well up to our present knowledge and doctrine on the difficult and disputed physiological questions of the day, that at one or two parts of the book we are disappointed. As, for example, in regard to the important question of the saccharine function of the liver. It accepts the experiments and views of Bernard without mentioning those of Dr. Pavy, which, in the opinion of most physiologists have greatly qualified the conclusions of Bernard, if they have not actually demonstrated that the formation of sugar does *not* take place in the liver during life and health. So, too, with regard to the physiology of the nervous centres. We expected a better account of the views and researches of Brown-Séquard and other recent observers, who have done so much in this department. But we repeat that our disappointment with particular parts of the book arises largely from its excellence as a whole. The author has not been content with merely adopting the current theories of the day, and the experiments of other physiologists; but he has experimented extensively himself, and discusses almost every part of the subject originally, ably, and independently. We have no better work of its size in our country. The illustrations, which number 274, are very good, and contribute greatly to the elucidation of the text. The plan of the work has the advantage of great simplicity; though, of course, like all very simple classifications of complicated processes, it is liable to objections. All subjects are disposed in one or other of three principal sections:—I. Nutrition; II. Nervous System; III. Reproduction. It is admirably adapted, as a strictly physiological work, to the purposes of the student or the medical practitioner.

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### THE

## PRESENT STATE OF SURGERY IN PARIS.

By Sampson Gamgee, Esq.,

Surgeon to the Queen's Hospital, Birmingham; Foreign Corresponding Member of the Society of Surgery of Paris; late Staff Surgeon of the First Class.

(*Continued from* January No.—p. 61.)

The case of amputation of the thigh which concluded the preceding paper of this series appeared so exactly to confirm what I had heard from M. Maisonneuve of the method of treating stumps, immediately after amputation, by so-called pneumatic occlusion, that many readers of The Lancet inquired for further details, with a view to test the practice; and it was with some difficulty I acted up to the principle enunciated at the conclusion of the previous article—that, "under the circumstances, judgment, and not enthusiasm, must have the reins." It is doubtful whether the desire for novelty, natural in the human species, be more strikingly illustrated in the wards of an hospital or in the *salons* of a court milliner. If the innovation be plausible—all the more if it be ingenious,—its first announcement attracts imitators, and a good deal of mischief is wrought before the truth is ascertained. This haste not only does harm by giving ephemeral importance to novelties possessing no substantial advantages, but still more by imperilling the fate of new ideas and methods through imperfect information on the many details which are essential to practical success. The surgeons of Paris have been, in former times as they are now, celebrated for the fertility of their innovations; but scarcely less so for disinclination to adopt changes from without. To the evidence which I have already advanced in support of this statement, I may add that in none of the Paris hospitals did I find traces of the employment of Dr. Richardson's ether-spray for local anæsthesia. The disciples of Amussat, with scarcely an exception, had forgotten the philosophical considerations which led him to the advocacy of arterial torsion: the great work of Luigi Porta—"Per la Legatura e la Torsione delle Arterie"—was unheeded, though the French Academy awarded it the "Prix Monthyon;" Professor Sir James Simpson's "Researches on Acupressure" seemed unknown to the great majority of Parisian surgeons; and in the cliniques which I happened to frequent, the importance of the thermometer as an instrument in clinical investigation was not admitted—indeed, it had been barely considered. That which is true of the French capital in relation to the surgery of other countries is, in great measure, true of the different hospitals of Paris itself. They are separate schools, with a singularly feeble bond of learned fellowship. I found surgery very differently expounded and practised in various cliniques. I certainly saw very little to deserve Guy de Chauliac's censure of the *vile pecus imitatorum*; but I had also reason to regret that Chevreuil's famous letters to Villemain on "La Méthode" had not found more favor with the Society of Surgery. In the early part of the last century the colleagues of Lapeyronié and Louis did well to protest—"l'Académie n'aime pas les systèmes;" but the want of the present surgical epoch is eminently generalisation.

Indebted as we are to the French for first lessons in clinical observation, it is not without much consideration that I express regret for the difficulty I experienced, when in Paris last August, in obtaining precise details of important cases; I everywhere met with the kindest disposition to communicate and to exhibit results; but the records of processes and actual histories were generally not available, because infrequently noted and preserved. The practice of pneumatic occlusion in M. Maisonneuve's clinique was no exception. The two stumps which I saw healed, after the treatment had been adopted, bore out, as did the statements of the patients, the enthusiastic remarks of the celebrated surgeon of the Hôtel Dieu; but I have since heard elsewhere that the history of the innovation had not been quite free from regrettable incidents.

The amputation of the thigh in which I tested the pneumatic apparatus progressed most favorably to the date of report, the fifth day after operation; but immediately afterwards a series of untoward symptoms set in, which, with occasional intermissions, resulted in the patient's death on the 16th inst. Anxiety to report fully, to prevent hasty imitation and give others the benefit of my own experience, will, I trust, be accepted as good explanation for delay.

On the 8th of October, the sixth day after operation, the morning note reports that the patient had passed a very restless night; stomach very irritable, even to frequent vomiting; complains of tightness and pain in the stump. The skin is hot; the tongue furred; pulse 112, bounding; temperature 99 3–5°; respiration 24. In the evening of the same day the temperature had risen to 102°, pulse to 120, respiration to 32. Each time the piston was worked, and the stopcock between the jar and the body opened, a good deal of treacly fluid trickled away (eleven ounces and one drachm in the last preceding forty-eight hours), and, at the same time, the stump was becoming larger and more tense, and the constriction at the upper edge of the vulcanised india-rubber hood very decidedly greater.

Under these circumstances I did not hesitate to remove the apparatus at once. I found the surface of the thigh, which had been covered by the hood, quite cool and pale, with the exception of a slight red mark, with abrasion of the skin at one point, corresponding to the upper constricting edge of the india-rubber casing. The strips of adhesive plaster were only blackened exactly opposite to the face of the stump; beyond that point, on the front and back of the thigh, the plaster was as clear, white, and dry as when first applied. The wound was united throughout its entire extent, and no discharge followed pressure from above. The ligatures were gathered together at the angles in dry cords, as we had placed them; none were loose. A piece of lint soaked in carbolic acid lotion (1 part in 100) was applied to the face of the stump. Next morning the temperature had fallen to 100°, the pulse to 104, and respiration to 24; the mark of constriction left by the upper edge of the apparatus had entirely disappeared, and the stump tapered gradually downwards. Twenty-four hours later the general improvement continued, as denoted by the further fall of the pulse to 100, and the temperature to 99°; but only a few hours more elapsed before a different train of symptoms set in. The discharge increased in quantity, the whole stump being very painful; appetite gone; rigors and sickness frequent. The bedside morning note of Oct. 20th reports: temperature 105°, pulse 132, respirations 36.

Through the indisposition of our able resident surgeon, Dr. Jolly, the observation of the patient now fell to Mr. Jenner Hogg, to whose most judicious and incessant care I am certain the patient's long survivorship was in great part owing. She died on the 16th of November, forty-five days after the amputation.

The autopsy, two days later, demonstrated the condition of the viscera to be healthy, with trivial exception. The lungs were quite free from disease; the posterior part of the lower lobes, though slightly œdematous, was throughout crepitant, and sections floated on water, even after considerable pressure. The heart was healthy; the right auricle and ventricle contained large venous clots; left auricle and ventricle empty. The vena cava and its right iliac divisions quite normal, but a clot occluded the whole left common iliac and its inner branches; the corresponding external iliac was corded; on division its coats proved a good deal thickened, and the interior filled with a chocolate-and-milk-like fluid, which in descent became paler, until it had all the characters of pure pus in the common femoral vein. Some of the ramifications of this vessel contained pus; others were firmly obliterated. The stump was perfectly healed, with very firm cicatrix, and the terminal vessels were also quite healthy; but above, considerable collections of matter had formed beneath the deep fascia, between the muscles, and under the femoral vessels at the middle of the thigh.

Without going into the question of the precise casual relation between the phlebitic and the surrounding inflammation, it may be taken for granted that, jointly, the two conditions were owing to a common cause—the constricting pressure of the vulcanised india-rubber hood at its upper edge. of the two hoods, which were the only ones I found to purchase in Paris, the larger was applied to the case under consideration; a still larger one would probably have been preferable. Mr. T. P. Salt, the surgical instrument maker of this town, has constructed a graduated series of hoods, nicely adapted for different stumps. The exclusion of air being the main object of the apparatus, it is essential that its upper border fit closely to the limb; and it would appear that the pressure, increasing with the exhaustion of air, must become somewhat constrictive where the hood terminates, and allows the soft parts above to become prominent. My friend and pupil, Mr. Montague Gillitt, has suggested a modification to prevent the upper part of the hood slipping back and increasing the constriction. Certain it is, that for the first five days my patient did not complain of the pressure, neither did the two men whom I had the opportunity of questioning at the Hôtel Dieu. The coolness and pallor of the stump within the air-tight compressing case is worthy of remark. Sufficient air appeared to find its way into the glass jar between the times for working the exhausting pump to cause some decomposition in the discharge; hence it was thought advisable to place a quantity of lime at the bottom of the receiver. It would, of course, be easy to prevent the decomposition of the fluid by the aid of any of the good disinfectants; though, once the stopcock is turned off after draining away the discharge, there can be no objection to its being poured away at once. If further experience bear out M. Maisonneuve's anticipations, the plan of treating stumps by pneumatic occlusion will probably be found to have special advantages in military practice and in hospitals in which pyæmia prevails. The mechanism of the apparatus is most simple alike in principle and practice; it dispenses with all dressing and movement, and by its uniformly compressing agency must doubtless have a great influence in checking muscular spasm.

*(To be concluded.)*

# News Items, Medical Facts, &c.,

**ODONTOLOGICAL SOCIETY.**—At the ordinary monthly meeting of this society, the President, G. A. Ibbetson, Esq., in the chair, Dr. Murie, Prosector of the Zoological Gardens, read a paper upon a "Case where Disease has ensued in the Alveolus of a Rhinoceros from the presence of a foreign body and a Case of Diseased Bone and Tooth Structure in a Bear."

**INFANTICIDE.**—Out of 1236 cases of murder in the last five years, 834, or 67 per cent., were cases of infanticide. The Coroners' returns for 1866 show that more infants were murdered last year in the county of Middlesex than in all the rest of England and Wales put together.

Dr. **ARNOT**, the surgeon of her Majesty's ship *Doris*, Dr. White, of the West Indian mail-ship *Rhone*, and the surgeon of the *Conway*, perished in the recent hurricane in the West Indies.

M. **DEMARQUAY** has been elected a member of the Academy of Medicine in the section of Surgical Pathology, in the room of M. Follin, deceased.

**THE** Queen has sent £200 for the relief of the sufferers by the Ferndale Colliery explosion. The number of deaths is estimated at 177.

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# THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery, Chemistry, Criticism, Literature, and News.

J. HENRY BENNET, M.D., T. WAKLEY, JR., M.R.C.S.E. EDITORS.

PUBLISHED MONTHLY.

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## A Lecture
ON
## LITHOTOMY BY A SEMILUNAR EXTERNAL INCISION.

By Sir **William Fergusson**, F.R.S.,

Serjeant-Surgeon to the Queen.

Notwithstanding the remarkable improvement in the treatment of stone in the bladder by lithotrity, the interest in lithotomy does not diminish; on the contrary, it may be said rather to increase. It is true that the operation is less frequent than in former times, but on that account it has become the more dangerous. Whilst at one time all cases of stone treated by operation went to swell the general experience and mark the results of lithotomy—whilst cases in the young, the comparatively healthy, and in those with healthy urethra, prostate, and bladder, went to swell the general success,—a change has in modern times come over the field in which this operation is now practised, and it may be said to be in a manner limited to those cases where lithotrity is not applicable.

Without discussing the applicability of the one or other of the two operations to the young, it may be affirmed as a maxim that between puberty and the age of fifty lithotrity will be the most suitable and the selected operation. Even above the last-named age a majority of cases will be most suitably treated by this method; and if any between puberty and extreme old age be rejected or set aside for lithotomy, it must be for certain unfavorable conditions and indications which, if likely to increase the dangers of lithotrity, will most assuredly have a similar effect in lithotomy. In other terms, it may be said that all the cases of stone in the bladder in the adult, with complications, are now set aside for lithotomy; whilst all the simpler cases most promising of success are treated by lithotrity. Hence, then, it comes that the use of the knife in this disease seems more fatal than ever. A surgeon who keeps to lithotomy alone in the present day is hardly to be tolerated; he is behind the age, and his contempt or ignorance of lithotrity renders his opinion of little value. But the accomplished lithotritist knows and feels that he has in a certain number of cases to declare that some are not favorable for that mode of treatment, and these, still seeking relief from suffering, are consigned to the dangerous ordeal of the knife. It is true that some of these cases do well, and it has perhaps been fortunate that they have been rejected from lithotrity; but, as a rule, there is great danger in meddling with them. That which may be bad for lithotrity is equally so for lithotomy. The common example of the stone being too large to be crushed is one where cutting and extracting are equally, even more, dangerous. If lithotrity is thought or found impracticable, the patient's life need not be placed in hazard; but lithotomy, once performed, sets him in a condition of jeopardy which may baffle the utmost skill.

These views have gradually acquired force in my mind, as experience in both operations has increased. Simple cases are selected for lithotrity—severe are set aside for lithotomy; hence the latter proceeding is more hazardous to life, and seemingly less successful than ever. That these conditions will acquire even greater prominence in time I feel strongly convinced; and as I am equally of opinion that, with our present knowledge, lithotomy will still remain a great and important agent in the hands of man to give relief from extreme suffering, it may be said to be more incumbent than ever upon the surgeon to endeavor to render the proceeding, if possible, less difficult and less dangerous.

Without thought and experience, it might be concluded that the less the difficulty the less the danger; but the practical surgeon knows full well that such a dogma has no reality when put to the test. The simplest, most easy, and best performed operation of any kind—what is often called brilliancy in the surgeon's acumen—frequently ends badly; whilst the most miserable display of surgical imbecility may become a real and admirable success. Admitting, as I must, such occasional results of experience, I nevertheless claim to raise my voice against this style of fortune; and I would fain have it for surgery that the happy conclusion of a well concerted and performed scheme is a veritable scientific surgical success.

I make no doubt that such thoughts as these must have passed through the minds of many of my experienced contemporaries; and I now venture further by making or suggesting a step in that onward progress which has invariably been the inspiration of all who have attempted improvement in the field of surgery. Whether that which I shall now broach may be esteemed in this light remains to be seen, and it is with no little diffidence that, as a kind of expert, I call the attention of my brethren in the profession to the subject.

It must, indeed, appear remarkable that anyone with such experience as I can claim should refer to the Celsian operation as having any features worthy of consideration among modern lithotomists; yet such is the case, and my present wish is to call attention to that which may in reality be a part of lithotomy of incalculable advantage.

Undoubtedly the story of the Celsian operation is the oldest we possess; and I believe I may say with equal truth that, in civilised surgery, it is the most neglected of all methods of lithotomy. The haphazard incisions, particularly about the neck of the bladder, are so objectionable to the anatomist that the mind of the modern surgeon revolts at them; the more so that the ideas of Jacques, Raw, Albinus, and particularly Cheselden in this country, seemed so precise in regard to these latter.

Unfortunately for surgery, in my opinion, extremes have often been the custom; and in no department more than in lithotomy has there been greater controversy in regard to free or limited incisions. The Celsian may, perhaps, be referred to as the example of the free and easy style; whilst possibly the Marian may be deemed the excess of limitation. The lateral incisions of Jacques and Cheselden may be considered a modern style; whilst, again, the recent proposal of Allarton may be considered as a revival of the Marian process.

There are two essentials in lithotomy which, if they can be commanded, seem to me beyond all calculation in value—viz., safety to the patient, and facility to the operator. On both of these points there are, and I fear must ever be, differences, of opinion; but I take it upon me to say that the method which is easiest to the surgeon, guided by anatomical and physiological considerations, must assuredly be the safest to the patient. With these views I have always maintained that a free opening externally and a limited incision internally have been, on the whole, the most desirable and successful. I claim no special success in my own practice; but I shall estimate no opinion to the contrary from anyone who cannot produce a number of operations nearly equal to my own. I can acknowledge no opinions of those who speak from one or at most some half-dozen examples, and those most likely performed in private practice.

On these principles I have always thought that the operation of Jacques, or, as it may be called in English surgery, of Cheselden, has held out the fairest prospects; and, above all, that it seemed superior beyond comparison to the Marian method which it was intended to supersede. The straight short incision in the raphé in front of the anus, the guidance into the bladder, and the dilating, or as some call it, the tearing process of that operation were all confessedly used as improvements in the former haphazard incisions described by Celsus. The limited mesial incision seems to have been by almost universal consent abandoned after Jacques's time for the lateral cut; and during the palmy days of the Dutch and French lithotomists, and also the period of our own Cheselden's work, when he repeatedly tried the high and various lateral methods of lithotomy, it has often struck me with astonishment that little or no notice was taken of what is called the Celsian operation. Whatever the changes in cutting instruments, from the broad and coarse dagger of Jacques, throughout the phases of the gorget, to the modern, comparatively elegant scalpel, no one seemed to deviate from the line of incision either in the raphé or on one side of the perineum. Perhaps I may except the operations of Vacca and Lloyd and of Dupuytren. None of these latter seemed to have gained favor; and among the many modern attempts to improve lithotomy, I can think of none which has attracted so much attention as that of Allarton. In all essential features this seems to me a revival of the Celsian operation; the means of dilating is somewhat different, but in other respects I recognise none. For small stones I believe it an excellent proceeding; and if the surgeon is fortunate in getting into the bladder, and seizing the stone with the forceps, the moderate distension, or mere laceration, produced by extraction, are not likely to prove seriously detrimental. But I cannot bring my mind to think that this operation, as generally applicable, is an improvement on the accredited lateral of Cheselden; and with the cases of this modern mesial lithotomy which I have seen and heard of my mind is more full of mishaps than from any other plan in my scope of observation. But I wish to refer respectfully to a plan of operation which I am aware has attracted much attention, and am prepared to change my views when I see any numerical data that can show superior results to Cheselden's lateral. From the time of Marianus to the present day the Celsian incisions have been referred to seemingly more for the sake of the curious than for the sake of instruction—more to deter than to attract. There is no evidence that Cheselden, who was perhaps one of the boldest experimenters among lithotomists, had ever tried the method; and even Dupuytren's semilunar cutaneous incision was perhaps more to test the double-bladed lithotome than to show any feature of the operation of the Celsian date.

Of this I am sure, that throughout my own personal experience I have never heard a proposal to revive any of the steps of this most celebrated operation. Cutting on the gripe has been nearly obsolete from the time of Marianus, and the only instance I can think of as modern is that related by Samuel Cooper in his "Surgical Dictionary." With the all but universal neglect, if not condemnation, of the operation, no one seems to have drawn any distinction between the external lunated incision in the skin and the formidable wound in the neck of the bladder, devoid as much of anatomical knowledge as the gripe was of mechanical skill. The anatomist can scarcely contemplate the deep incision in the Celsian operation without a shudder; yet if he considers the superficial wound, it may be difficult to point out a defect. My own impression regarding this is so strong that it constitutes the real object I have in view in offering these remarks.

In almost every instance in which I have observed difficulty in the operation of lithotomy, whether in cutting, in seizing the stone, or in extracting it, a short external incision has apparently been the cause. The cutting instrument has not been easily used in the deep part of the wound; the point of the left forefinger has not been easily passed into the bladder; the same with the forceps, and the blades have not been readily opened; nor has it been possible to extract without swaying the wound in the skin as it has been stretched over the instrument and, in the last movements, over the stone. Much of the latter part of lithotomy is done with the forefinger of the left hand, and when the external incision is short its margins will appear to encircle the finger, so that there seems scarcely room to introduce the knife for the deep incisions. It is under such circumstances that the prostate is likely to be pushed before the point of the finger, and that the operator is likely to fail in reaching the bladder. When the perineum is deep, the further progress of the finger is arrested at the cleft between it and the middle one, and additional pressure merely pushes the skin towards the deeper parts. If it so happens, however, that the external incision is free, the finger readily passes deeper, so that the knuckle gets into the wound—a thing impossible in the short incision. When the finger and instruments can be easily passed into the deep parts, the latter and nicer steps of lithotomy can be more readily accomplished, and therefore, in my opinion, with greater safety to the patient. Although fully aware that the operation has been most satisfactorily accomplished through an opening more like a stab or a round hole than an incision, I nevertheless consider the style very objectionable, and its happy results as exceptions to the general rule.

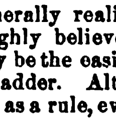
I have an impression that such palpable objection to a limited external incision had much influence in leading to a change from the Marian operation. It does not, however, appear that Jacque's incision at the side of the perineum was made with a view to length, but gradually, as the lateral operation became developed, a free opening in the skin in front, at the side, and below or behind the anus, was made an important feature; and the modern surgical anatomist has specially indicated that the knife may be very freely used between the anus and the tuberosity of the ischium to a considerable depth, as no important tissue lies in this locality. There is, however, a limit here to which the knife may be used with impunity, for the rectum, particularly if it be capacious, is in jeopardy if the incision be free and deep. Yet since Jacques's period, and particularly since the precise anatomical epoch of Cheselden, the lateral incision in the skin of the perineum has held its ground with but slight exception, and it may emphatically be called *the* mode of lithotomy of the present day.

Although I have practised the operation all my life, with a few exceptions, entirely in accordance with the views of Cheselden, I have from an early period had doubts if we were even yet on the right line for perfection. I have doubted if, after all, the side way has been the best either into or out of the bladder; and I have ever had in view the indications of Nature in this region. The contents of the bladder, of the vesiculæ seminales, although coming from the side, find their exit through the mesial line, and the *débris* from the bowels takes departure in like manner. But, above all, the ingress and egress to and from the uterus seem to me to indicate Nature's intentions as to a middle or central passage. The vagina must be allowed to be the *via sacra* between the urethra and rectum in the female; and although the analogy I mean to draw does not hold good as regards the ends of the vagina, or, in other words, the os uteri and the vulva, still I imagine that I may claim a propriety in the difference between the surgeon's operations and those of Nature, and at this distinction my lecture aims.

The grand immediate objects of lithotomy may be said to be an easy entrance to, and an easy exit from, the bladder, both being secured without unreasonable damage or risk to the patient. The old mesial or Marian operation seems to have been so far destitute of these qualities as to have been in time utterly condemned and given up. With all deference and with all respect to such of my contemporaries as have practised or advocated the revival of this operation,—for I call it nothing else in its main features,—I make bold to say that the same fate must befal this recent innovation. From personal observation, and from what I have read and heard, I believe that more mishaps have occurred proportionately in this operation than by the ordinary lateral, with which all practical surgeons are unhappily too familiar.

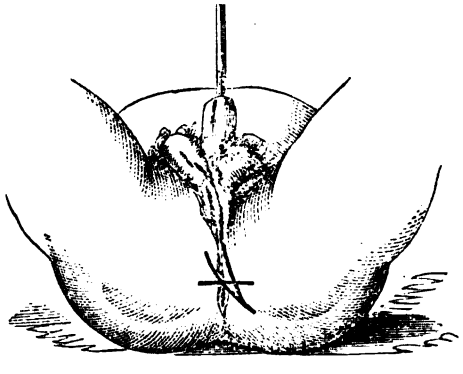
The theory of the lateral operation is, upon the whole, excellent. The external wound is in a thoroughly safe line as far as regards damage to important structures; and the same may be said as regards the deeper passage to the bladder. The bulb of the urethra, and the rectum on the mesial line, the common pudic artery on the outer side, are intended to be thereby avoided; and the gliding between the accelerator urinæ and erector penis, without damage to either, seems a feat to gladden the heart of the physiological surgeon. True the transversus perinei must suffer, and so must some of the levator ani; but then, again, the division of the lateral lobe of the prostate in its long axis, about midway between the reflected portion of the pelvic fascia and the vesiculæ seminales, indicates that perfect precision in which the surgical anatomist delights. That such theory is generally realised in the lateral operation I thoroughly believe; yet I have my doubts if this really be the easiest and safest way to and from the bladder. Although I have followed the practice, as a rule, ever since I began to perform lithotomy—a period extending over thirty-five years,—yet I have long been sceptical on this subject; and, as proof of this, I may refer to my temporary adoption of Dr. Willis's proposal of lithectasy in 1842; and, again, to my proposal in that operation for an incision like this (Fig. 1), the upper line to be in a part of the raphé, and the sloping lines on each side of the anus. Neither of these proposals seemed to take with the surgical mind in Britain; although the latter has been extensively and successfully used by Dr. Eve, of

FIG. 1.



Nashville, as I have lately been told by that gentleman himself. Even with the experience I had acquired twenty years ago, I felt diffident about seeming to question the perfection of Cheselden's operation, and so I went on as best I could with the time-honored lateral. The old feeling, however, cropped up again in me, and still leaning to the central part of the perineum, I ventured on another innovation. Instead of beginning the lateral incision on the left side of the raphé, I ventured more and more to the right, as indicated in the lines in this cut (Fig. 2), beginning a little to the right of the raphé, and then a little more; until, possibly, had I gone on, I might have tried a transverse wound between bulb and anus, from tuberosity to tuberosity. I have been told that these views, good or bad though they may be, are not original—that this gentleman and that gentleman made such and such incisions. But I have failed to find any record of the practice, nor am I disposed to say much about it; although I have fully satisfied myself that crossing the border from one side of the raphé to the other was in no wise detrimental, the early impression on my mind (erroneous as it proved) being to that effect. But a direct transverse line did not satisfy my imagination so much as a longer oblique one, and at last I boldly ventured on doing what I had never seen nor read of in modern surgery: I performed lateral lithotomy as regards the deep parts of the wound and prostate, beginning with the famous, but antiquated if not despised, semilunar incision of Celsus. On the 16th February, 1867, I cut a boy six years old, at King's College Hospital in this manner. The operation was simple and easy; I may almost say, more so than is usual with myself. The recovery was perfect and without a bad symptom, although the wound healed more slowly than is common after the lateral operation at this age. On the 1st June following I had an opportunity of performing similarly on the adult—on a patient forty-eight years of age, in whom lithotrity had failed—on that account a case of extra danger, in accordance with the views set forth in the early part of this lecture. The result was highly satisfactory.

FIG. 2.



Since then I have had a third successful case in the hospital, on a patient aged sixty-four. An example in private practice, on a patient aged fifty-nine, with most unpromising adjuncts, has also been crowned with a successful issue; and with this experience—one under puberty and three in the adult, with questionable data—I venture to bring this subject in this public manner before my professional brethren.

In all these cases the wound seemed to me to heal more slowly than in successful lateral lithotomy; but whether this was a coincidence in each or the result of the peculiar line of incision, I cannot take it upon me to say. My impression is that it was only chance, but I should not quarrel with any who think otherwise, nor do I deem it a point of much importance, provided there be advantages otherwise.

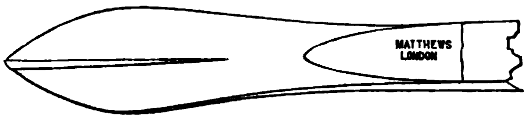
It may be said that four successful cases are not sufficient to display any advantages to induce a trial of a new operation, and in some respects I willingly admit this; but it must be borne in mind that I write with an experience of nearly 200 lithotomies by my own hands, and it may be admitted that I should be allowed an opinion as to the peculiarities or features of different methods which I have myself tried. On this score I can say unhesitatingly that I have been greatly pleased with the proceedings I refer to.

Although I speak of the Celsian operation, I beg it to be observed that this differs as essentially from that method as did the latter operations of Jacques with those he first performed in Paris. When he began he cut at hap-hazard, and without a guide, into the bladder; but latterly, after being driven in ignominy from the capital of France owing to want of success, he used a guide —a staff as it is now called—into the bladder, and then it is supposed that his greatest triumphs came. The operations of Raw and Cheselden included this important feature, but it nowhere appears that there was any guide into the bladder in the Celsian operation, excepting the uncertain bulging of the stone as pulled and pressed downwards by the fingers of the surgeon introduced into the rectum. I have heard of Mr. So-and-So again, as in the oblique and transverse incisions, having made the Celsian incision in the skin with a staff in the bladder, but I know of no record of any such thing, and hence I am induced to call the attention of my brethern to the subject.

It may be said that Dupuytren's operation embodied all that I seem to intimate as new in this paper—the staff and the semilunar incision; and in some respects this may be admitted, but the double incision in the prostate and the use of the lithotome caché seem to have made little, if any, impression on the minds of modern lithotomists. Neither the double-bladed lithotome of this distinguished surgeon nor the single-bladed instrument of Frère Côme has taken with English surgeons, probably in consequence of the decided preference of the operation of Cheselden.

The proposal that I now make is more in accordance with that celebrated proceeding, and the chief difference is in the external incision. I have already referred to the seeming safety of that incision, and also to some of its dangers, but something more may be said on these points. When the perineum is presented in position for the commencement of lithotomy, the raphé usually appears as a hollow (excepting in very fat subjects) bounded on each side by the ischium. The external incision, being intended to run midway between that bone and the mesial line, is carried along the highest part of the surface—for the operator dare not go near the ischium, knowing the danger to the common pudic incurred thereby, and so he begins at the furthest distance or highest eminence from the bladder. In other words, it may be stated that a wound here, to reach the neck of the bladder, must be deeper than one in the middle of the perineum. The deeper the wound, the more difficult, and I may add the more dangerous, the operation; and, most notable of all, the seizing and the extraction of the stone are more likely to be difficult through a deep wound than a shallow one, particularly when that wound or passage for the stone is limited to one side of the perineum. The objection which I have always felt to the Marian or mesial incision is that, being a straight line from over the bulb of the urethra to the front of the anus, it has been too limited to give facilities for the deeper part of the operation, and incapable of giving a fair and safe exit to a stone above average size. I admit, as a practised lithotomist, that skin and other tissues may be compressed or pushed towards the bladder in making way towards that organ, and again that when the stone is between the blades of the forceps the neck of the bladder may be drawn towards the skin, so as to make the perineum appear comparatively shallow; but I believe that both processes are highly objectionable in lithotomy, and the easier that the bladder is entered, and the easier that the stone is removed from it, the better. This leads me again to advert to the midway of Nature. When great space is required, as in egress of the head of the fœtus, the expansion takes place towards the ischia and the coccyx, and such should be the aim of the surgeon in dealing with a large stone. I am disposed to think that a semilunar incision facilitates this in a more efficient and satisfactory manner than any other. Here it might be said that the mesial incision carried into the rectum would fulfil this proposition, and so I believe it would; but all experience goes to show that such a wound of the sphincter and front of the rectum as this implies, is highly objectionable. There is no evil in the semilunar incision greater than that of the lateral; on the contrary, there seems to me less. For in this central locality there is in reality no vessel, nerve, or part to demand the surgeon's caution; the bulb and rectum are certainly in no greater danger, and assuredly the common pudic and its perineal or scrotal branches are in less. The great peculiarity of this semilunar incision however, is that it gives such an extensive external opening beyond what in this locality any single straight line would. The gap opens something like the clasp of a purse's mouth; and the points of two or three fingers can be placed in it at once, so as to depress the anus and lower part of the rectum, and permit the knife to be freely used between the bowel and bulb and on the lower part of the triangular ligament. With sweep after sweep of the knife in the semilunar direction, a close proximity with the bladder will have been made; and now the operator may take his choice as to the steps of the future stages of the operation. Years ago I thought of using a blade of this kind (Fig. 3) after making an opening into the membranous portion of the urethra. A sort of minature double gorget, intended to be carried with its probe point along a groove on the convexity of the staff, to notch both sides of the prostate; but being unwilling to change the cutting instrument, I resolved to try with one, and so, using the same blade which I employ in the ordinary lateral, to make the semilunar cut. I have at this stage aimed at the membranous portion of the urethra, and thereafter cut into the lateral left lobe of the prostate with the same blade in the usual way.

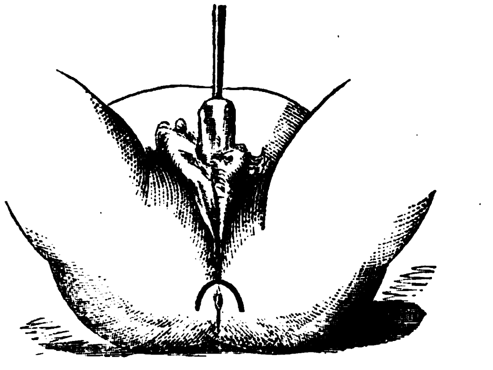
FIG. 3.



Thus I have combined the time-hallowed, or rather time-neglected, semilunar incision described by Celsus for cutting on the gripe and the modern lithotomy of Cheselden of cutting the left side of the prostate on a staff. All parties since the time of Jacques, who is said to have used in his latest operations a guide, director or staff, to render his internal incision more precise, have agreed on the value of this great addition to lithotomy, and I need scarcely add that the staff is an essential feature in the operation to which I now draw attention.

The performance differs from the ordinary method only in the external incision, but a short description may be desired. The staff being introduced, the patient is to be bound and held in the ordinary way. The usual lithotomy knife, like a scalpel in a strong handle, is to be held in the right hand with its cutting edge directly upwards; the point is then to be introduced into the skin on the right side of the perineum, midway between the anus and the tuberosity of the ischium and a little lower than the anus. It may be inserted a quarter or half an inch deep; and, by a pushing or gliding movement upwards, the right side or end of the semilunar incision is made, then the curve, and then the slope on the left, so that a line like that indicated here (Fig. 4) is completed.

FIG. 4.



During the movement the knife is gradually turned round with the hand, whose radial margin from being first turned downwards, is ultimately upwards. A second similar sweep, with the extreme ends not so deep, should next be made, when the fore and middle fingers of the left hand should be pushed into the wound between the bulb and rectum, with the intention of separating those parts; it will then be found that the anus and rectum can be depressed with peculiar facility, Now, too, with possibly a touch or two in the middle part of the wound, it will be found that the finger readily slips into the space between the erector penis and compressor urethræ; and the staff may be felt through the tissues between them and the membranous portion of the urethra. By a dexterous push, the point of the knife may be introduced into the groove, or perhaps a little further cutting may be used to divide a portion of the lower margin of the triangular ligament and part of the levator ani, or these may be divided in withdrawing the knife. The point of the blade should be pushed along, say, one-half of the membranous portion of the urethra, into the prostotic portion, so as to notch or cut freely the left lobe of this organ, or the latter may be done in withdrawal. Should the gorget (Fig 3) be preferred, it may be used after the opening has been made in the membranous portion. The subsequent steps are the same as in the ordinary lateral operation, excepting that the forceps may be held more to the right, and withdrawn through the middle of the perineum, instead of the left side, as in the common way. Should the stone be large, the right side of the prostate can be more readily reached through this wound than through the lateral, and the good rule of pulling obliquely downwards in extracting can be more efficiently accomplished than through a wound in the side.

The after-treatment is in all respects as in the usual operation, a tube being used or not, in accordance with fancy or fashion. The skin in front of the perineum immediately behind the scrotum being left entire, the wound is scarcely observable as the patient lies on his back. In one of my cases a surgeon of experience on looking at the perineum would scarcely believe that lithotomy had been performed until he made a closer examination.

With the limited experience of only four cases, although three of them were adults, and comparatively unfavorable for operative interference, it would be wrong and beyond my wish to refer to this proceeding as specially superior to lateral lithotomy; yet I think it worth while to call the attention of my professional brethren to it from the conviction that it deserves trial, and with a hope that it may in some degree simplify, in regard to performance and danger, one of the most formidable and interesting operations in surgery.

# Clinical Lecture

ON

# PULMONARY EMPHYSEMA.

By E. Headlam Greenhow, M.D.,

Fellow of the Royal College of Physicians, Assistant-physician to the Middlesex Hospital, Etc.

*(Concluded from February No.—p. 76.)*

It is so important that you should be fully aware that emphysema, arising thus from constitutional causes, may develop to a considerable extent without cough or other symptoms beyond gradually increasing dyspnœa and oppression at the chest, that I shall now proceed to read you the notes of another instructive case in point.

J. H——, aged forty-two, a stoutly-built man, of medium height and robust appearance, who had served in the navy in early life, but had for some time been a messenger, was admitted into Founder ward under my care on Sept. 19th, 1865. He stated that his health had always been good—that is to say, he had never been disabled from work, —and that his habits were strictly temperate, which from my personal knowledge of him I believe to have been true. He had now, however, suffered for a considerable time from a sense of oppression at the chest and from shortness of breath, especially when making any exertion; and, on closer inquiry, I found that he had occasionally had slight catarrhal cough. His family history showed a strong gouty tendency. His mother, indeed, was living and in good health, but his father had died at the age of fifty-three, from chronic gout and its consequences; and of a brother and three sisters who besides himself had survived infancy, his brother and eldest sister were both subject to attacks of gout. Having previously had no complaint except the dyspnœa, he had been seized, ten days before his admission into the hospital, with rigors, vertigo, and vomiting followed by sweating and cough. Three days later, pain had come on in the right hip, knee, and ankle, and subsequently in both feet. On admission there was redness and œdema of both ankles and of the right hand, and general tenderness of the muscles of the right calf and thigh. The skin was hot; the tongue coated with a creamy fur; the pulse 90, of good volume and strength. The urine was amber-colored, acid, had a specific gravity of 1026, and was non-albuminous. The chest was broad and large, prominent in front and deep at the sides. It was very resonant on percussion over the whole front; over the back of the thorax the resonance was also clear. On auscultation, sonorous and sibilant rhonchi were heard over the upper parts of thorax, and moist mucous rhonchus in the bases of both lungs posteriorly. The heart-sounds were free from murmur, but the apex was somewhat depressed, and the over-lapping lungs encroached on the cardiac region so as to diminish the area of cardiac dulness.

The physical signs in this case clearly explained the cause of the dyspnœa and feeling of oppression at the chest, which had gradually come on whilst the man still regarded himself as quite well. The deep and prominent chest, the depression of the heart, and the diminished area of cardiac dulness, all pointed to an abnormal enlargement of the lungs, whilst the marked clearness of the percussion-note showed that their enlargement was due to an excess of air dilating the air-vesicles—in fact, to pulmonary emphysema. Had the increased size of the thorax, which was too uniform to be called bulging, arisen either from effusion of fluid or from the escape of air into the pleural cavity, it would have been restricted to one side of the thorax, the movements of which would have been unsymmetrical with those of the other side; whereas, in this case, although the expansion of the thorax was imperfect, its movements on the two sides were perfectly symmetrical. Moreover, on the first supposition, percussion would have yielded a perfectly dull note; on the second, the resonance would have been tympanitic rather than, as it was, a mere exaggeration of the normal sound; and in neither of the supposed cases would the bronchitic râles have existed on the affected side.

The exact nature of the arthritic affection in this patient was at first difficult to determine. The pains had not commenced in any of the small joints, nor in the great toe, as is most common in gout, and they were attended by more sweating than is usual in that disease. On the other hand, the sweating was less profuse than it usually is in rheumatic fever, and the man had passed the period of life during which that disease is most apt to occur for the first time, and had reached about the age when gout very commonly begins in persons who have a hereditary right to it. Being thus a little uncertain as to the precise character of the attack, I, in the first place, prescribed a draught containing two drachms of liquor of acetate of ammonia, one scruple of acetate of potash, fifteen minims of tincture of squills, twenty minims of tincture of hyoscyamus, and ten drachms of camphor water, to be taken every six hours. I also gave him two grains of blue pill and three of compound rhubarb pill at bedtime, and the ordinary senna draught on the following morning. On the 22nd all doubt as to the nature of the case was set at rest by the characteristic appearance of gout in the left great toe, which was swollen and red, and so painful that the patient shrank from any approach to it. He was still perspiring, but the perspiration had not the strong sour smell belonging to rheumatic fever, and the skin was only moderately warm. The pains in the ankle and right hand and the bronchitic symptoms continued troublesome. I now ordered a pill containing two grains of the acetic extract of colchicum and three grains of compound powder of ipecacuanha, continuing the draught as before in the daytime. On the 26th he was still suffering severely from pain in the great toe, foot, and knee; his tongue was coated with yellow fur; bowels free, and urine clear, but high-colored and acid. The pulse had fallen to 76, and the sweating had entirely ceased, but the bronchial irritation continued, and the patient expectorated with difficulty a scanty frothy sputum. The heart-sounds were normal; there was mucous crepitation in the base of both lungs posteriorly, and sibilant and sonorous rhonchi were heard over the front and upper back of the thorax. I now put my patient upon a plan of treatment which you have often seen me adopt with great advantage in cases of gouty bronchitis—that is to say, I prescribed for him a draught consisting of five grains each of iodide of potassium and carbonate of ammonia, fifteen minims each of tincture of squills and wine of colchicum, and twenty minims of tincture of henbane in an ounce and a half of camphor water, to be taken three times a day. From this time very marked and rapid improvement took place. The gouty pains entirely disappeared, leaving, however, a notable amount of œdema of the left great toe, with desquamation of the cuticle and itching. The cough and other bronchitic symptoms abated, and the patient was almost convalescent in the first week of October. He then, however, began to be troubled with psoriasis of the arms, which lasted for some weeks, and for which I gave him full doses of nitro-hydrochloric acid. He was discharged to be an out-patient on October the 24th, and continued to attend until he was cured of the psoriasis, and considered himself well. The physical signs of pulmonary emphysema of course remained, although not, so far as I could ascertain, aggravated by his recent illness, and the patient still had a certain amount of dyspnœa on exertion, which will in all probability increase with the advance of age.

The points in this case to which I wish more particularly to draw your attention are those bearing upon the diathesis, the existence of which was demonstrated by the symptoms and family history, and which I regard as having caused the primary change in the pulmonary tissue, leading to the development of emphysema. You are already well acquainted with the relations subsisting between the gouty dyscrasia and chronic bronchitis, and you will recollect many cases to which I have from time to time directed your attention, in which gout, bronchitis, and psoriasis have alternated or coexisted. In more than one of the cases upon which I founded my lectures on gouty bronchitis, emphysema was also present; but the bronchitis having been of comparatively long standing, there was no means of ascertaining which of the two diseases had preceded the other. In the history of the case just quoted, however, there is nothing to countenance the supposition that the emphysema had been produced by the exertion of any undue or violent force upon the inner walls of the air-vesicles either during the act of inspiration or that of expiration. All the evidence, on the contrary, tends to show that some change had taken place in the pulmonary tissue itself, lessening its power of resistance to such an extent that the walls of the air-vesicles became unable to resist even the slight augmentations of pressure to which they were exposed in the ordinary contingencies of life. Even if we consider that the slight catarrhal attacks which, in common with almost every one in this climate, the man had occasionally experienced, had had some influence in developing the emphysema, we can only regard them as having been able to produce such an effect on the supposition that the lungs had previously lost their natural tone and elasticity. Upon any other supposition it would seem that, among persons exposed to the accidents of work and weather, the occurrence of pulmonary emphysema must be, not the exception, but the rule.

I am myself strongly of opinion that in this case, by no means a very uncommon one in my experience, the loss of tone and elasticity of the walls of the air-vesicles, which had caused them to yield to slight distending forces, was due to altered nutrition, the result of the gouty dyscrasia. It is well known that slow degeneration of the heart is common in persons of gouty constitution, more particularly in cases in which the attacks of regular gout are either pretermitted or imperfectly developed; and the comparative frequency with which emphysema also occurs in persons of gouty diathesis has long convinced me of the existence of a similar relation between the gouty dyscrasia and some form of degeneration of the tissue of the lungs.

As I consider this view of the frequently constitutional origin of emphysema a subject of great practical importance, I shall make no apology for reading you another case, in which it appears to me beyond question that such degeneration of the pulmonary tissue had taken place, and had occasioned the spontaneous development of emphysema.

W. J——, aged forty-five, a carver and gilder, became an out-patient under my care on Feb. 23rd, 1866. He had suffered annually from gout during seventeen or eighteen years, and had for some time known himself to be somewhat short of breath on exertion, but stated positively that he had never had cough until a fortnight before I saw him, when he had taken cold from getting wet-shod. On admission he was manifestly suffering from recent catarrh, affecting the bronchial mucous membrane. He had much cough, attended by a thin, frothy, transparent expectoration, and a moderate degree of dyspnœa. His skin was warm; pulse 72; tongue coated with a creamy fur; urine non-albuminous, sp. gr. 1018. The respiration was somewhat labored, the muscles in front of the neck being in action even during ordinary inspiration. The chest was deep in its antero-posterior diameter, broad and well rounded in front. Percussion elicited an abnormally clear note over the whole front of the thorax, but more particularly in the mammary regions. Posteriorly also the percussion resonance was clear. The heart was somewhat depressed, and its normal area of dulness diminished. The liver was also depressed, and its margin could be distinctly felt below the ribs. The breath-sounds were sibilant, expiration being audible and prolonged over both lungs. Mucous crepitation was heard in the base of the left lung posteriorly. The heart-sounds were normal in character, but the impulse could neither be seen nor felt in the usual situation.

I need not, for my present purpose, detail the progress of the case under treatment. On the 15th of May the patient was discharged convalescent. His respiration was perfectly easy, and he was all but free from cough excepting in the morning, when he raised a scanty, thick, starch-like mucus, resembling the pearly sputum described by Laennec as attendant on dry cattarh.

The case was evidently one of slowly developed general emphysema, for no other supposition could explain the displacement of the heart and liver and the abnormal clearness of the resonance on percussion over the whole chest but it had produced no symptoms beyond slight shortness of breath, which had caused the patient so little inconvenience that he never applied for medical advice until exposure to wet had brought on an attack of bronchitis. After one such occurrence, however, the bronchial membrane remained delicate, and a slight cause sufficed to bring on a second attack of bronchitis, for which the patient was readmitted under my care about two months later. The bronchitis on this occasion was complicated with anasarca and albuminuria There was also a faint systolic murmur over the lower third of the sternum. The emphysema, which had caused so little distress while subsisting by itself, had now, when complicated with the bronchitis, so impeded the current of blood through the right side of the heart, and throughout the venous system generally, as to induce both the albuminuria and the anasarca. It might indeed be supposed possible that, as the man had so often and during so long a period suffered from gout, the kidneys had become the seats of gouty deposit, and had even begun to undergo chronic atrophic changes, which, in such case, would have largely contributed to produce the albuminuria; but the comparatively normal character and specific gravity of the urine, and its uniform freedom from albumen during the period of the patient's first attendance at the hospital, would appear to disprove the existence of any serious change of structure in the kidneys at that time. I believe, therefore, that the albuminuria and anasarca which were both of such recent occurrence, were mainly, if not altogether, due to the venous congestion which had recently taken place as a consequence of the second bronchitic attack.

I shall hope on some future occasion to have the opportunity of entering more fully into the consideration of the effects produced upon the circulatory system by bronchitis in conjunction with emphysema, and must confine myself to-day to a very brief explanation of the manner in which they operated, in my opinion, to produce the conditions referred to in this particular case. Whenever emphysema is extensive—as constitutional emphysema usually is, even when not very far advanced—the obliteration of many of the capillary vessels, which causes the remarkably dry and anæmic appearance presented by emphysematous lungs, must necessarily impede the flow of blood through the pulmonary artery. This impediment excites the heart to increased efforts, and by degrees produces hypertrophy, which may in ordinary circumstances afford just sufficient increase of power to the heart to enable it to overcome the obstruction and maintain the balance of the circulation; but this compensation becomes insufficient when the obstruction due to bronchitis is suddenly added to that consequent upon the emphysema. As all obstacles to the circulation produce a backward pressure of the blood, this obstruction to the flow through the pulmonary artery tends to prevent the emptying of the right ventricle during its contraction, and throws additional strain upon the tricuspid valve, which may even yield to the pressure and admit the regurgitation of blood into the auricle, distending it more or less, and retarding the return of blood from the venous system to the heart. This obstruction of the venous circulation causes congestive hyperæmia, more particularly of the abdominal organs; and hence may arise albuminuria from congestion of the kidneys, and anasarca from general venous congestion. This, in fact, I believe to be the true explanation of the occurrence of the albuminuria and anasarca in the case before us, even though some slight previous disease of the kidneys should have predisposed them to suffer from the unwonted impediment to the circulation; and I regard as a strong confirmation of my view in this matter the patient's very rapid improvement under the use of remedies which relieved the bronchitis and venous congestion, and the entire disappearance of both the albuminuria and anasarca before he discontinued his attendance at the hospital.

The systolic murmur, which I have mentioned as being audible at the time of the patient's readmission, and which also disappeared previous to his discharge, was unquestionably due to the regurgitation of blood through the tricuspid valve. Whether the regurgitation ceased altogether when the murmur disappeared must remain a subject of doubt, for the cessation of the murmur by no means necessarily implies the absence of all reflux of blood through the auriculo-ventricular orifice; but it is quite conceivable that the regurgitation was only a temporary condition, due to the yielding of the valve to the unusual pressure caused by the distended state of the right ventricle. The tricuspid valve is considered by some eminent authorities to be normally so constructed as to yield to the pressure caused by any temporary impediment to the flow of blood through the arterial orifice. John Hunter long ago remarked that the valves of the right side of the heart did not close so completely as those on the left side; but this safety-valve function of the tricuspid valve was first distinctly enunciated by Dr. Adams, of Dublin, and very ably explained by the late Mr. T. W. King, in the second and sixth volumes of the first series of Guy's Hospital Reports. Dr. Adams looks "upon this difference in the valves of the right and left sides of the heart as being a natural provision to allow of a partial reflux into the right auricle on those occasions when, from any cause, the passage of the blood through the arterial opening is retarded." Such a cause existed, as I have already explained, in the case under consideration; and I have no doubt that this was precisely the condition which gave rise to the systolic murmur, the duration of which corresponded closely with the duration of the bronchitic obstruction.

In conclusion, I must return for a moment to those features of the case which furnish, as I conceive, very strong evidence in favor of the opinions I have expressed in this lecture. The very recent accession of the first attack of bronchitis; the certainly much older date of the emphysema, judged from the shape of the chest and from the permanent displacement of the heart and liver; the existence of gout in its most confirmed form during a still longer time; and, lastly, the absence of any history of excessive mechanical force exerted on the walls of the air-vesicles in the course of the man's occupation or otherwise,—all point out this case as a genuine instance of constitutional or substantive emphysema, intimately connected with the gouty dyscrasia which we have found to exist also in so large a proportion of cases of chronic bronchitis. I would, however, by no means be understood to imply that the gouty diathesis is the only one which may cause such loss of tone and elasticity in the lungs as tends to the spontaneous development of emphysema; for, on the contrary, I have met with cases of obviously constitutional hereditary emphysema, such as the first of the three cases related to-day, in which I have been unable to diagnose any gouty taint, or to ascertain the existence of any from the family history. The main point which I desire now to impress upon you is, that, in the large majority of cases, mechanical or other determining causes have only power to produce emphysema in lungs the tissues of which are already predisposed to yield to their action by some form of degeneration.

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# Clinical Remarks

ON A CASE OF

# LARGE CYSTIC BRONCHOCELE CURED BY IODINE INJECTIONS.

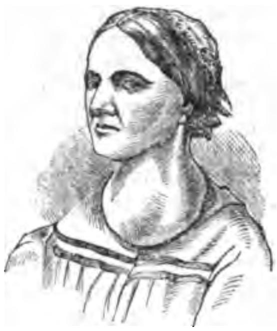
*Delivered at the London Hospital.*

By T. B. Curling, F.R.S.,

Surgeon to the Hospital.

The particulars of this case, one of some interest, on which I desire to make some clinical remarks, have been furnished me by Mr. James Adams.

Emily G——, aged fifty-four a widow, was admitted into the hospital on February 20th, her home being at Long Milford, in Suffolk. About fifteen years previously she noticed a swelling towards the left side of the thyroid cartilage. It grew very slowly; but about five years before admission its rate of growth increased very much; and when first seen on February 20th, the tumour, which was smooth, and fluctuating towards its anterior and lower part, occupied the lower two-thirds of the anterior triangle of nearly all the posterior, causing the circumference of the neck opposite the most prominent part of the tumour to measure 19 inches. Towards the outer and posterior part an artery, apparently equal in size to the external carotid, being quite superficial, could be seen and felt running upwards towards the angle of the jaw; numerous small veins were also visible. The swelling ascended when the patient swallowed, showing its connexion with the larynx.



On Feb. 25th, the tumour was tapped, and seventeen ounces of reddish serous fluid were drawn off, reducing the size to 16 inches. No constitutional disturbance followed, but by March 16th the size had increased to 18 inches. It was then again tapped (about fourteen ounces of dark bloody serum being removed), and injected with about one drachm and a half of compound tincture of iodine (Ph.) and water, mixed in equal proportions, which merely caused a smarting for about an hour.

The following day the tumour had returned nearly to the size it had before the tapping and injection.

On Friday, March 26th, the tumour, having again increased to 18 inches, was tapped, but only a small quantity of fluid drawn off. It was injected with the compound tincture of iodine undiluted, about a drachm and a half being thrown into the sac, and left there. No pain or uneasiness was felt in it until the evening of the following Monday, when she had pain in the head, giddiness, and much fever; and on the following day the tumour became hot and painful, and measured 19 inches.

In a few days the constitutional disturbance subsided; the tumour being first treated with a poultice, and subsequently ice was applied. Although the general symptoms became less, there was considerable dysphagia, and the tumour increased in size, and on April 12th measured 20 inches, and was very red at its anterior and lower part. She could then swallow only fluids.

April 14th.—Tumour (now measuring 20½ in.) was more painful, very hot, and the skin œdematous at the posterior part, which now fluctuates distinctly; no appetite nor sleep; pulse 120. It was now determined to let out the fluid. The sac was first punctured with a trocar, and then opened freely with a scalpel, letting out about twenty ounces of fluid, which afforded immediate relief. The fluid consisted of an opaque liquor, containing altered blood-discs and compound granule-cells. A drainage-tube was then introduced, and in a few days the discharge became purulent, thick, of a greenish color and offensive odor.

30th.—The tube was still kept in, and the discharge was copious. Protruding through the wound, there was seen an apparently ordinary slough, but upon withdrawal it was found to be a firm membrane folded on itself—being, in fact, the wall of the cyst. After this the discharge continued, though somewhat lessened in quantity and more healthy in character. The general health was very good. The circumference of the neck was reduced to 15½ in.

June 3d.—Still discharging from the original opening, a little to the right of which there was a prominent fluctuating swelling, which was opened and several ounces of pus let out, During the next four weeks two other small collections of pus became prominent, and were opened, discharging pus.

July 22nd.—The general health was now quite restored; there was no dysphagia, and the appetite was good. The circumference of the neck was now only 14½ in. There were three or four small openings in the anterior part of the remainder of the tumour, which was firm and painless. These openings discharged a little thin fluid, and were occasionally touched with nitrate of silver.

She left the hospital on the 30th, the tumour decreasing in size, and being so much diminished as to occasion very little deformity. Two of the sinuses were closed, but one continued to discharge a little. There was scarcely any swelling in the neck, and the patient was discharged cured.

The morbid changes in the thyroid gland producing the swelling called bronchocele are of two kinds: hypertrophy of the natural structure, the common and well-known form of the disease; and the development of a cyst, the case related being a marked example of the latter. Cystic bronchocele is a much rarer form of the disease than hypertrophy of the gland. It occurs at all ages after puberty. The cystic formation is generally single, and it differs further from hypertrophy in being limited almost invariably to one lobe of the gland. When the cyst acquires a large size, the glandular structure becomes obliterated by pressure. The seat of the disease, however large the cyst may be, is rendered obvious by its connexion with the larynx. When the patient swallows, the tumour moves up with the windpipe; and in this way cystic bronchocele is easily distinguished from the cysts formed in the areolar tissue of the neck, called "hydrocele of the neck;" A large cystic bronchocele is a serious disease, not only on account of its producing an ugly tumour and great deformity in a conspicuous part of the body, but also from its liability to press on the trachea and œsophagus and to obstruct these passages. Gooch, an old surgical writer, whose works are now seldom read, but who has recorded many interesting and remarkable cases, mentions one case of cystic bronchocele in which the trachea was compressed and contracted by the cyst. Some similar cases, in which deglutition and respiration were impeded by a cyst in the thyroid gland, will be found in a paper in the *Archives Générales* for 1837. A cystic tumour in the thyroid gland, however, does not always grow to a large size. Whilst still small, it may remain stationary and cease to increase. Some years ago I removed from the dead body a small cyst in the right lobe of the thyroid evidently of very old standing, for it is encased in bony deposit, forming a complete osseous sac. The specimen is in the London Hospital museum. When the cyst remains small, no surgical interference may be called for; but in the case of Emily G—— the tumour had attained a great size and was steadily enlarging, so that the patient became very anxious for something to be done in order to get rid of it.

The cure of cystic bronchocele may be effected in three ways: by excision, seton, and injection. Dr. Beck, of Fribourg, who published some cases of cystic goître in 1836, treated three of these by excision. Two were cured, one after severe inflammatory symptoms; the third was doing well, when low fever ensued, and the patient died of pyæmia. The circumstance that an artery of great size passed over the outer part of the cyst precluded my thinking of excision in G——'s case. Besides, the disfiguring long cicatrix remaining after excision constitutes an objection to this operation. The seton is an effectual mode of treating this disease. Maunoir, of Geneva, in a memoir published in 1825, gave an account of four cases of large thyroid cysts which were cured by seton; and Mr. Spencer Watson lately showed to the Pathological Society a woman with a large cystic bronchocele, which interferred with respiration and deglutition, and which he was treating successfully in this way. Injections of iodine act so well in the cure of serous cysts that I was induced to try them in G——'s case, especially as the sac was by no means thick. The second injection caused active inflammation, followed by suppuration and separation of the cyst. The result, however, was satisfactory in effecting a cure of the disease. The rapid increase of size after inflammation had set in interfered seriously with deglutition, so that the patient was unable to swallow any solid food. This was quickly relieved by a free opening into the cyst made by the house-surgeon, Mr. James Adams. Suppuration in a cyst of so large a size, and near so many important structures, is not altogether free from danger. There is a preparation in the museum of St. Bartholomew's Hospital of a large cyst of the thyroid gland, which inflamed and enlarged rapidly after tapping, and the patient died rather suddenly, suffocated. The cyst had burst, and discharged its contents into the pharynx and larynx. The same thing happened in Gooch's case. The patient expired suddenly in consequence of the cyst inflaming after being incised, and opening by ulceration into the trachea. Injections of iodine are certainly not so well adapted as the seton to the cure of cases where the cyst is much thickened. There is another advantage in the seton over injections—that it is free from the risk attending the rapid enlargement of the cyst and the confinement of matter, which proved fatal in the cases just alluded to, as there is always an outlet for the escape of fluids. So that, upon the whole, I regard the seton as the more valuable plan of treatment, and the one most generally applicable to these cases.

# Original Papers.

## CLINICAL PAPERS ON THE SURGERY OF CHILDHOOD.

By Thomas Smith, F.R.C.S.,

Assistant-Surgeon to St. Bartholomew's and the Children's Hospitals.

### HARELIP.

This congenital deformity, consisting in a cleavage of the upper lip, is due to an arrest of the natural development, either of the bones forming the upper maxillary arch, or of the soft parts which should bridge over the bone beneath. The bones forming the alveolar process of the upper jaw appear to grow forwards from the sides towards the middle line, and to unite on either side the middle line with the intermaxillary bone or bones: the latter, growing forwards and downwards on the bony septum of the nose, should fill up the gap in the alveolar arch between the superior maxillary bones. This junction between the superior maxillary bone on either side and the intermaxillary bone in the centre takes place between the incisor and canine teeth; so that the intermaxillary bones carries in it the germs of the four incisor teeth. The cleft, therefore, if it exist in the bones, is always found on one or both sides between the incisor and canine teeth. The soft parts forming the upper lip are apparently developed in the same manner and direction as the bony parts beneath. The sides of the lip seem to belong to the maxillary portion of the alveolar arch, while the centre of the lip with the columna nasi appears to attach itself to the intermaxillary bone. This, I think, we are justified in assuming; since, in the varieties of cleavage which we find in the different kinds of harelip, the deficiency in the lip is always opposite to, and in a degree corresponds with, the line of union, or of separation (as the case may be) of the bones beneath.

The normal method of ossification of the upper jaw is as yet undecided: and no distinct bony centres have been seen in well-formed jaws, such, as must exist in the malformation of double harelip with cleft of the bones. In this deformity the ossification and growth *must* take place as I have described; that is, by not less than three centres of ossification—one for each upper maxilla, and one for the intermaxilla.

The varieties of harelip may be very numerous; consisting in differences in the deformity of the soft parts of the lip—whether the cleft be on one side (or single), or on both sides (or double); and differences depending upon the depth of the cleft in the lip—as to whether it extends into the nostril or not.

Again, in double harelip, the central portion of skin—i. e., that which should cover the front of the intermaxillary bone—may be of natural dimensions or may be very small; it may occupy its normal position, it may be distorted to one or other side; or it may be elevated, depressed, or completely everted. Where the bones participate in the deficiency of the soft parts, we may have in them corresponding varieties and degrees of deformity, such as single and double cleft, displacement forwards of the intermaxillary bone, or complete eversion of the same.

A few minutes will not be lost in considering the origin of harelip. There are only two circumstances that could possibly stand in the relation of cause: the one is hereditary predisposition, the other maternal impressions. The first is usually acknowledged as powerfully predisposing to the recurrence of a harelip. In many families the deformity is known to be hereditary. In other cases, several children in the same family are affected without any predisposition being traceable in their ancestors. In illustration of this point, I will quote the following account given by Mr. J. Spoule, himself a surgeon. This gentleman states: "Harelip is a disease with which I have been acquainted since my first notice of anything, for it was the only disease from which my family suffered. It has been handed or linked down from one branch to another for the last hundred years; and in some instances lately has seemed to have gained vitality. I have a brother also who has harelip, with complete division of the palate and alveolar process; he has two girls and a boy, out of seven children, affected in exactly the same way as himself. Another brother of mine had a daughter who was also affected with the malformation. I had also a cousin who was similarly affected, and he had a daughter affected."

In two instances I have operated on two members of the same family; and I am aware of one family, consisting of the three children, all of whom are affected with harelip.

Maternal impressions are not so generally admitted as exercising any influence in the production of harelip. There is a difficulty to many minds in allowing that mental impressions in the mother can in any way influence the physical conformation of her offspring.

Great discredit and suspicion have also been thrown on the truth of many well-authenticated accounts of bodily deformities that are seemingly connected with mental impressions of the mother, by the absurd stories which mothers concoct for the edification of their female friends, often assigning to mental impression malformations that are obviously due to some mechanical cause.

I confess that the amount of probable evidence we possess on this subject will not allow me to deny the possibility of maternal mental impressions influencing the physical conformation of the fœtus—nay, more, to my mind the evidence is conclusive in favor of the existence of such an influence. As a well-authenticated case in support of my belief, I will relate to you an instance of bodily deformity in connexion with maternal impressions that occurred under the cognisance of Mr. Paget.

A person, when pregnant with her first child, chanced to shake hands with a man who some years previously had lost the middle fingers of the right hand, the index and little fingers, from long practice in grasping objects, having become contracted and drawn together after the fashion of a lobster's claw. Being a nervous and very sensitive person, she was startled and distressed when she became aware of the condition of the hand; and for some days she could not dismiss the recollection of it from her mind. When her child was born it was found that the middle fingers of both hands and the middle toes of both feet were absent. In the course of the next five years this person had four perfectly-formed children; and during all this period she never once encountered the man—indeed he was not in England. When pregnant with her sixth child she again unexpectedly met the man, and was obliged to shake hands with him. She was so much disturbed by this occurrence, and so impressed that the child would be deformed, that in the evening she wrote down the event and her conviction regarding the child. When the child was born it was deformed just as the first had been.

Harelip is said by some authors on the subject to show a preference for the female sex. My own experience does not support this statement. Sir William Fergusson has noticed the sex in 250 of his own cases. Mr. Bryant also has observed the sex in 64 cases that occurred at Guy's Hospital. I have noticed the sex in 32 of my own cases. These added to Mr. Bryant's and Sir W. Fergusson's make 346 cases, of whom 210 were boys, and 136 girls—a result which, as far as the numbers go, is at variance with the statement usually met with in books, a statement which is likely enough to have had its origin in remote antiquity, and to have been copied from book to book until it has come to be regarded as true.

The deformity, when unilateral, is generally thought to be, and probably is, more common on the left side of the lip.

The varieties of harelip are generally classified under three heads—*single*, *double*, and *complicated*. I shall, however, consider any variety as worthy of separate notice that requires a separate plan of treatment.

*Treatment.*—1st. At what age should an operation be undertaken for the cure of harelip?

The time of selection—i. e., the best time, when one has the opportunity of choice—is between the third and sixth month of infant life. In recommending this period as the most favorable for the operation, I would not restrict it to any particular epoch, since, many children are as robust and strong at the age of two months as others are at six. Rather consider that any age before the commencement of dentition is suitable, provided that the child is past the period of earliest infancy, is at least in fair health, and has shown by its progress since birth, and general condition, that there is a good prospect of its continued existence.

In the event of a child coming under treatment during the period of dentition, some interval between the eruption of the teeth must be selected for the performance of the operation.

It may sometimes happen that there is little choice of time for the operation—namely, in cases of newly-born infants who are unable to take the breast in consequence of the deformity, and where the performance of the operation may enable them so to do. Even in such a case, however, I would not undertake the operation unless requested by the mother. I would rather recommend that the child should be spoon-fed, either with its mother's milk or artificial food, until it had passed the tender age of earliest infancy.

I give you this advice for the following reasons:—

1st. The operation can be done more perfectly and artistically on a young child than on a newly-born infant, the parts being larger, more fleshy, and more easily handled.

2nd. A young child has, *cæteris paribus*, far more constitutional vigor and power of resistance to and recovery from injury than a newly-born infant; the younger child therefore is more likely to die under the operation.

3rd. Many infants with harelip die from causes unconnected with this deformity during the first few weeks of life, thus dispensing with the necessity of an operation.

M. Guersant, the present surgeon at the Children's Hospital, Paris, is against an early operation. Giraldès (his predecessor at the same hospital), who has had great experience in this deformity, recommends that the operation should be done in the first days of infant life, and in this opinion I am bound to tell you many coincide. The grounds of Giraldès opinion are the following:—

1. The younger the child is, the more quickly union takes place.
2. That in the case of cleft palate the union of the lip tends to bring the separated bones together, and to diminish the fissure in the hard palate.
3. That if the operation be postponed, infants get into a habit of thrusting their tongues into the hiatus between the bones, until at last the tongue acquires "le droit de domicile" in the palatine fissure. In a paper where this opinion is expressed,[*] nine cases of Giraldès are quoted, and of these three were under the age of ten days when subjected to the operation; two of them died.

On this question Sir William Fergusson, than whom no one has a larger experience, thus expresses himself: "The earlier the operation is performed the better; assuredly before teething. I decidedly prefer before the end of the first month in a healthy child, though the operation may be performed any time earlier to within a few hours of birth."

The same author, however, recommends that in the case of weakly infants, where the gap in the lip is large, and especially if the palate be cleft, the operation should be postponed for some months, until the child has acquired strength. I have myself operated on but one child under a month old. In this case union at first took place; symptoms of syphilis, however, supervened, the line of union ulcerated, and the child died.

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[*] L'Union Médicale, 1865, No. 138.

I have seen very many infants with harelip die before the third month, without operation, of causes not connected with their deformity.

Mr. Cooper Forster recommends the performance of an operation "at the earliest possible period, remembering, however, that loss of blood in very early infancy may be attended with the worst consequences." "I should," says Mr. Forster, "have no hesitation in operating immediately after birth, so as to avoid the shock to the mother occasioned by the sight of the child. The operation has been performed successfully within seven hours after birth. But the possibility of a fatal issue must not be forgotten."

Mr. Forster prefers to encounter the greater risk of the operation at this period, on the ground that the danger of the operation is less than that of imperfect nutrition from the deformity; and in support of this he relates two cases where death occurred, as he believes, from this cause—the one at six weeks, the other at fifteen days, after birth. But it is worth noticing that the death in the first case ensued from convulsions and diarrhœa the day after the operation for harelip had been performed; while in the second case the same operation had been done four days before death. Thus in both instances the operation may have had something to do with the fatal result.

The inability to suck, as far as my experience goes, is less frequently dependent on simple harelip than on fissure of the hard palate—an irremediable deformity at this tender age. In cases of harelip with cleft palate the early union of the lip certainly tends to bring the bones together; even in these cases, however, the loss of a month or two can make no great difference in this particular, especially if the mother be directed frequently to press the bones together from the first, or if the truss recommended by Sir William Fergusson be worn by the child.

There are certain imperfections in the result of the operation for harelip to which attention should be directed, since they are very likely to occur, and, when present, they seriously interfere with the completeness of the cure. These are: notching of the free margin of the lip; a dissimilarity in the horizontal plane of the opposite edges of the wound; and the occurrence of suture scars. It is to the last only that we will now allude; since, to avoid repetition, it will be convenient to consider, once for all, the different kinds of suture that are employed in the treatment of harelip.

*Sutures.*—Of the various kinds of suture employed for the cure of harelip, the most time-honored and the most generally used is the twisted suture; so that in speaking of sutures the terms "twisted" and "harelip" are used as synonymous. The advantages of this kind of suture in the treatment of hare-lip are many and obvious: it secures firm, close, and accurate apposition; by its rigidity it keeps the exactly opposite and corresponding parts of the fissure in contact; and by the figure-of-8 thread twisted across the wound, the edges of the latter are pressed down and kept exactly on the same level. On the other, hand, the following objections may be raised against its employment in certain cases —namely, that it cannot be allowed to remain in position long enough to secure the firm union of the wound without running some risk of leaving on the lip disfiguring and permanent traces of its presence. These traces may be either a small, depressed, livid spot at the points of entrance and exit of each pin, or, together with this, a transverse bar of cicatrix across the line of the wound. I by no means wish to imply that a permanent cicatrix of the kind mentioned above is a constant result of the operation for harelip when twisted sutures are employed; but that such an effect may occur, and is often not altogether avoidable, and this results from the nature of the suture.

In applying this kind of suture when the edges of the wound are drawn together by tightening the thread beneath the needle-ends, the needle is raised above the level at which it was inserted, and pushed upwards towards the surface of the skin; while the twisting of the thread beneath the needle-ends and across the line of the wound completes the circle of constriction. Thus all the soft parts included in the suture are compressed between a rigid bar of steel below, and a more or less tight and unyielding thread above—a condition which often sorely tries their vitality and powers of endurance.

This compression does not exist to any serious extent where the edges of the wound approximate easily and without tension, as in wounds of the wall of the abdomen or the face, and indeed in some cases of harelip where there is abundance of tissue; here the merits of the suture are very apparent. But it is otherwise in the treatment of bad cases of harelip in young children, where the tension of the soft parts is often considerable, and where these bear pressure badly.

The stretching of the edges of the wound in serious cases of this deformity is more considerable than in wounds generally, both on account of the width of the wound left after the operation, and because the line of the wound falls across the crown of the alveolar arch, in these cases often abnormally prominent from the projection of the intermaxillary bone.

It may be stated as generally true that where there is much tenison about the edges of the wound one runs a risk of causing a permanent cicatrix, if harelip pins remain longer in the lip than forty-eight hours after the operation—too short a time to admit of the wound being firmly united.

With a view to meet these objections in cases where otherwise the twisted suture would be used, I have frequently dispensed with the thread altogether, fastening the ordinary glass-headed harelip pin by clamping a perforated shot passed over the point so as to keep the edges of the wound in contact. On many occasions I have used a suture formed of a single strand of fishing-gut, passed deeply through the wound and clamped down on either side to the skin with a perforated shot. This has given me most excellent results, having never failed in my hands to secure union. It may be left *in situ* many days without cutting into the tissues. If there is a very scanty supply of soft parts, and much tension on the suture, it is liable to cause some eversion of the cutaneous edge of the wound; this may be remedied by tying the free ends of the gut over the wound after clamping it down on the sides. The knot across the wound may be cut on the second or third day afterwards, and the shotted portion may be allowed to remain as long as desirable.

Mr. Wood's button suture is much on the same principle, though silk is used instead of gut.

The same may be said of Mr. Pollock's metallic studs or buttons, which answer the same purpose as the shot in my suture, though perhaps more efficiently. Mr. Pollock passes a silver wire through the edges of the fissure, and fastens it on the sides by drawing it down into a slit in the stud made to receive it.

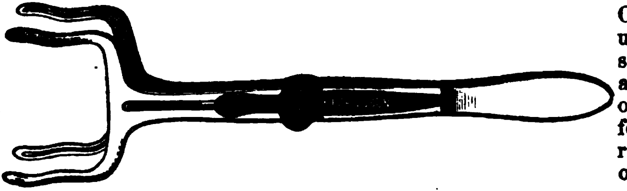
The *interrupted* suture is in every way well suited for harelip. It is used and recommended by both M. Giraldès and M. Guersant, the former of these gentlemen often allowing the threads to remain in for a fortnight or three weeks. In this kind of suture silk-thread, fishing-gut, horsehair, or silver wire may be used. Of these, the last three are to be preferred, as exciting less irritation than the first.

The *continuous* suture is admirably adapted for the treatment of harelip in every respect but one—that is, that it cannot be removed part at a time; and in this respect alone it is inferior to the interrupted suture, though for securing close and accurate contact it is to be preferred.

Whatever kind of suture be employed, it should pierce the skin a third of an inch or more from the margin of the wound, and should be passed deeply, even down to the mucous membrane, though it is well to avoid entering the mouth.

In describing the treatment of harelip, it will be convenient to mention the different plans of operation in connexion with the particular varieties of the deformity to which they are severally applicable. The simplest kind of harelip that requires operation consists in a single fissure on one side of the lip, not involving the nostril. These single fissures vary much in depth, but the only difference, surgically speaking, worth considering is the kind of angle that the fissure forms, and the degree of symmetry of its two sides. The more acute the angle, the more perfect may be the cure, especially if the fissure is to some extent equilateral; whereas a largely divergent fissure, with unequal sides, requires great care to restore to the parts their natural conformation. The only instruments required in operating for harelip, except when the bones are distorted, are a pair of narrow forceps finely hooked at their points for seizing the edges to be pared, a narrow sharp-pointed knife or harelip scissors, and sutures. (Fig. 1.

FIG. 1.

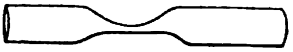


Chloroform should, of course, be employed. For myself I always use and should recommend to others the accompanying instrument, which controls all hæmorrhage, and enables one to give an undivided attention to the accurate adaptation of the edges of the wound. It should grasp the lip on either side of the fissure, and should be adjusted before the operation is commenced, and taken off only when the sutures are introduced, and are ready to be drawn tight.

In all harelip operations the preliminary step should be to divide any adhesion between the lip and gum that might hinder the ready approximation of the margins of the fissure.

*A single harelip*, where the separation is not very great, and the fissure is nearly equilateral, may be treated by paring the edges by what is termed the "incision en parenthèse"—that is, slightly curved incisions, whose concavities are opposite ( ); the denudation of the edges, which should be freely effected, may be done with a narrow knife or harelip scissors, according to the taste of the operator. If the edges are pared with scissors in preference to a knife, the centre of each margin of the fissure should be seized with the forceps, and be drawn towards the opposite side rather forcibly. If the scissors be then applied from below, and each edge be pared by one snip, it will be found that the margins of the wound will be slightly incurved in the manner referred to above. Scissors used in this way make a wound whose edges for sharpness and regularity leave nothing to be desired; indeed, it requires a very practised hand to produce so good a result with a knife.

The wound may be closed with a continuous or interrupted suture, the mucous edge of the lip being first secured, care being taken that in the union of the parts the line of junction between the skin and mucous membrane exactly corresponds on both sides of the fissure. The sutures may be removed so soon as the wound is firmly united, or before if they excite any such irritation as is likely to leave a permanent scar. If there be any considerable tension of the edges immediately after the operation, a piece of plaster, shaped thus, should be applied across the face from ear to ear, the cheeks being drawn forward, and gathered up from either side towards the middle line while the plaster is adjusted; the line of the wound being protected by a small piece of lint smeared with simple cerate or zinc ointment. In all cases such a piece of strapping should be applied for a few days after the sutures are removed, and until the union is thoroughly firm.



I may mention, as a warning against the neglect of this precaution, the case of a child with double harelip on whom I operated, using the shotted gut suture. On the fourth day after the operation, union appeared to be complete, and the sutures were withdrawn, plaster being applied. Three days after this, the use of the plaster was abandoned. On the following day, the eighth from the operation, the child, while asleep, sneezed or coughed; at all events the entire wound broke down, and pretty free hæmorrhage occurred. The case ultimately did very well.

In a case like the preceding, where the newly-united wound reopens, it is a question whether the sutures should at once be reapplied, or whether the wound should be allowed to remain open until the edges have cicatrised, so that subsequently the operation may be undertaken afresh. There can be no rule of universal application in such contingencies. I would suggest that, if in the first operation the surgeon has succeeded in carrying out his plans to his own satisfaction, and the edges of the wound are healthy, the fissure may be at once brought together by sutures. If, on the other hand, the edges of the wound are unhealthy, or the surgeon feels that there were defects in the first operation that might be obviated by exercise of greater skill, it would be better to allow the wound to granulate and cicatrise, and afterwards to plan and execute the operation afresh.

*Single harelip*, where the cleft is either widely divergent, or where there is great inequality in the divergence of the two sides, one side forming perhaps nearly a right angle at the mucous edge of the lip, while the other slopes away rapidly into the neighboring cheek, is a kind of deformity that requires considerable care, and a different plan of incision from the last, to prevent a notch in the edge of the lip, and therefore it is that such devices as the following are adopted. For a slight case of this variety of harelip, such as is represented in this diagram (Fig. 2), the margins of the fissure may be pared down to the red edge of the lip, and being drawn downwards out of the cleft, the raw edges may be sewn together after the wound above has been closed; the pendent tongue formed by the extreme ends of the flap being docked with the scissors to a suitable length (Fig. 3). In a more extreme degree of this unequal divergence of the edges of the fissure, such as is seen in the diagram (Fig. 4), the following proceeding may be adopted, and, if carefully executed, will give most excellent results. Indeed, I frequently employ it in all degrees of inequality and divergence of the sides of the fissure.

FIG. 2.

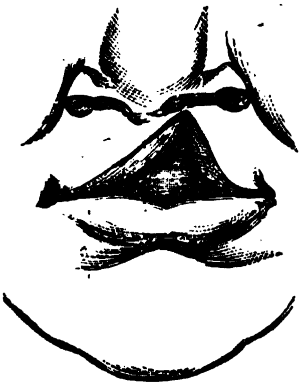
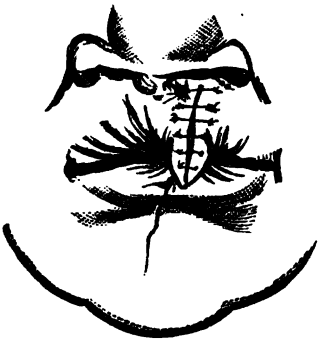


FIG. 3.



The side of the cleft where the soft parts are more abundant, and vertical in direction, may be pared rather freely,* from above downwards, as far as just above the line of junction between the skin and mucous membrane; the flap thus formed is not to be detached. The opposite or more oblique and sloping side of the fissure is to be pared from above downwards, by a slightly curved incision from the angle of the fissure to the line of junction between the skin and mucous membrane. From this point the mucous edge of the lip is then pared by a second slightly curved incision, as represented in the adjoining diagram (Fig. 4). Both the parings on *this* side of the fissure are to be removed, while that on the opposite side is to remain attached. During the closing of the wound, the attached flap must be drawn down; the lower or projecting angle of the one side of the fissure is to be inserted into the retiring angle of the other; and the pendent flap is to be laid along and attached to the free edge of the lip, so as to obliterate the notch which would otherwise exist. The lines of incision, and the manner of bringing the flaps together, are shown in the adjoining diagrams (Figs. 4 and 5).

FIG. 4.

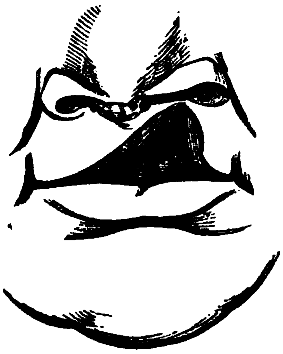
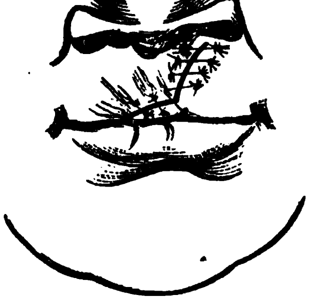


FIG. 5.



In both these varieties of harelip I should recommend a continuous horsehair suture, though the interrupted or twisted suture might be employed for the upper part of the fissure. In applying a continuous suture of horsehair, I am accustomed to clamp on a small perforated shot to the free end of the hair, to prevent it drawing through, and to finish off the suture in the same way—i. e., clamp a small shot on to the hair as it emerges from the last suture hole. If shot and pliers are not at hand, the hair may be tied across the wound at the beginning and end of the suture.

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* More freely than is represented in the diagram

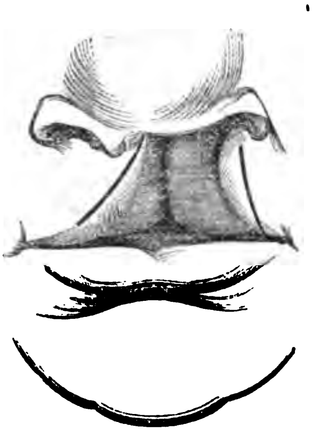
In both the operations just described, the wound should be drawn together, beginning from above downwards; and in all cases where there is any considerable tension, a piece of plaster should be applied from ear to ear, drawing the soft parts towards the middle line of the face.

Mention has hitherto been made of the treatment of cases of single harelip without fissure of the nostril; should, however, the nostril be involved, the operation need be in no way modified. The three methods of incision just described are equally suitable to different degrees of the deformity complicated with fissured nostril. If your experience agrees with mine, you will find that the nostril is far more often fissured than not; indeed, among 32 cases of which I have kept account, I have met with but one or two simple fissures of the lip uncomplicated with cleft of other parts.

In cases of single harelip, where the nostril is widely cleft, and the separation in the lip is extreme, the operation of "mortaise" devised by Giraldés may be put in practice with advantage. I will describe the proceeding in M. Giraldés' own words, since none can be clearer.

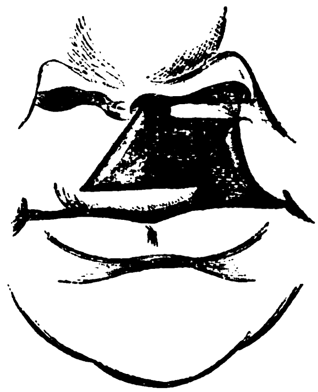
Let it be supposed that the harelip is single, and on the left side with a large gap in the soft parts. I commence by cutting from below upwards on the right side a flap, which is left adherent by a pedicle at the upper extremity. Another flap is made on the left side of the fissure in an opposite direction, that is, from above downwards, being left adherent by a pedicle at the lower end. (Figs. 6 and 7.)* The flap of the right side is drawn upwards; that on the left side is drawn downwards. In other words, these two flaps are altered in direction, so that from being vertical they become horizontal, that on the right side being superior, that on the left inferior—their line of contact being formed by their raw surfaces, while their mucous edges serve, the one to form the margin of the nostril, the other that of the lip.

FIG. 6.



In a bad case, with much tension of the parts, M. Giraldés recommends, in addition to this proceeding, a horizontal incision starting from the free edge of the wound at the upper part of the lip, and running under and parallel to the ala of the nose. This incision is to include the muscles, so as to allow the soft parts to be drawn more easily towards the middle line of the lip.

FIG. 7.



*Double harelip without protrusion or displacement of the bones.*—This variety of the deformity often admits of a more satisfactory cure than the more simple unilateral fissure, and this is on account of the deformity being symmetrical, and therefore allowing the parts to be brought together without any lateral distortion of the labial orifice. The same treatment can be adopted whether the nostrils be involved in the fissure or not.

The varieties of double harelip which for practical purposes it is necessary for us to recognise are—

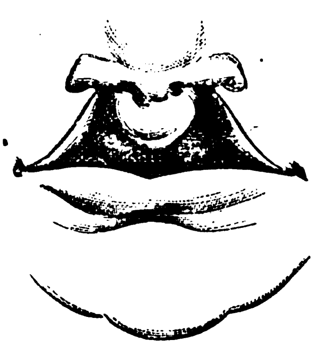
1st. When the central tubercle of soft parts is of medium size.

2nd. When it is very minute, or absent altogether.

3rd. When it is voluminous.

It is expedient in all cases, when practicable, to close both sides of the fissure at one and the same operation; cases may arise, however, where, from the scarcity of soft parts, but one side of the fissure can be treated at a time.

FIG. 8.



In an ordinary case of this kind of harelip, such as is represented in Fig 8, the central portion of the soft parts that cover the intermaxillary portion of the maxillary arch is of medium size. When the central portion is very minute, it may be cut off altogether, but generally it may be economised, and used to eke out the scanty lateral flaps, by paring its margins to a point, if it be too short to be brought down, so as to take part in forming the margin of the lip; while it may, if long enough, be pared laterally, so as to leave its mucous covering below, that it may form the central portion of the lip.

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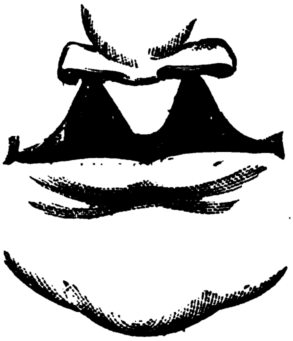
* The term right and left, must here be understood to refer to the surgeon, not the patient.

As in the operations for single harelip, all adhesion of the soft parts to the bone must first be divided; at least, all that hinders the proper approximation of the margins of the fissure. By this preliminary separation the central portion of the lip may often be brought down so as to form a useful and ornamental addition to the labial margin. In Fig. 9 the method of incision for this degree of the deformity is shown, and the manner in which the central portion is to be drawn down when practicable is seen in Fig. 10. It is in the varieties of double fissure that the ordinary harelip pin, or some modification of this kind of suture, is useful, since thus we can with one suture include both sides of the wound, and transfix the central portion, keeping all three on the same level.

FIG. 9.

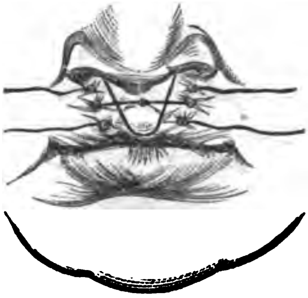


I have already alluded to some disadvantages of this kind of suture. Still, in double harelip, a single twisted suture, inserted just below the nostril to keep all the parts steady, may often usefully be employed, being removed at the expiration of forty-eight hours. The other parts of the wound may be closed by fishing-gut passed with a straight needle through both sides of the lip, as a harelip pin, and clamped down with shot to the skin on either side; or Mr. Pollock's studs may be used to fasten a silver wire passed in the same way.

If there is much tension of the parts, a small glass bead should be threaded on the gut, so as to lie next the skin, since in the squeezing the shot undergoes to clamp it, its edges may become rough and angular, and not so well fitted to rest against the skin as the smooth surface of a bead. The free ends of the gut may also, if necessary, be tied across the line of the wound, as represented in the middle suture in Fig. 10. This knot can be cut two or three days after the operation, and the shotted part of the suture may be allowed to remain in until it has effected its object.

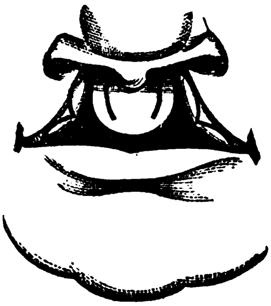
Cases of double harelip, when the central fleshy tubercle is rather more voluminous than in the preceding cases, admit of an excellent cure by the following method, which, as far as I know, is quite a new method. I have employed it with the best results. It makes a really pretty lip in suitable cases.

FIG. 10.



The soft parts being detached from their adhesion to the bones, the sides of the fissure are pared in the manner represented in Fig. 11, flaps being formed from the sides of the central tubercle by incisions running from above downwards, towards, but not up to, the lower free border of the same, as seen in the figure. These flaps are not to be detached. The wound is closed by drawing down the flaps formed from the sides of the central tubercle, and attaching them to the raw surface on the lower margin of the lip. They thus go to form part of the mucous edge of the new lip.

FIG. 11.

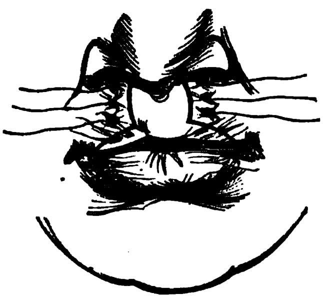


In this operation the sutures should be inserted into the upper part of the wound first, the central tubercle being drawn downwards meanwhile; shotted gut, or perhaps the harelip pin, being employed to bring together the cleft of the lip, while the flaps are stitched to the free edge of the lip by means of a continuous horsehair suture (see Fig. 12, in which, however, the horsehair suture is omitted at the margin of the lip).

In a case of double harelip, with great deficiency of soft parts of the upper lip, when the cleft could not otherwise be closed, the *cheeks* may have to be separated from their connexion with the bones, so that they may be slid down towards the lip; and this sliding movement may be facilitated in the way recommended by Giraldès by incisions running up just below the ala of the nose in the naso-labial furrows.

In all the varieties of deformity that I have hitherto spoken of, I have supposed that the bones, by their position, offer no hindrance to the union of the soft parts by operation—that is, that there is no excessive prominence of either of the upper jaw or of the intermaxillary bone. Let us now suppose that the superior maxillary bones project on one or both sides of the fissure, so as to render the union of the soft parts impracticable.

FIG. 12.



It is a good rule in the treatment of these cases to adopt any device sooner than the removal of the prominent part, since by removal we deprive the soft parts of their natural support, and the patient of one or more of his teeth.

The edges of the superior maxillary bones, if prominent, must therefore, if possible, be bent inwards towards the middle line, and forced back into the cleft which it will help to fill up. For this purpose, the bone must be grasped with a pair of strong pliers, covered with leather at their ends, and be broken or crushed inwards towards the middle line. A very convenient form of pliers for this purpose is figured by Mr. Butcher in his work on Operative Surgery, and bear his name. This instrument grasps the bones, and divides the anterior or facial surface of the bone, so as to allow it to be bent inwards towards the palatine fissure.

It would certainly be advisable in a bad case to make a separate operation of this proceeding, and not to close the fissure and force back the bones at the same sitting.

*The intermaxillary bone*, with the central portion of the lip and columna nasi, may be displaced in such a way as to render some proceeding necessary to restore it to its normal position. If it be simply prominent, it may sometimes be pushed back into position, though I have never succeeded in this; or a wedge-shaped piece may be cut from the septum nasi, the wide end of the wedge being below. This will leave the intermaxillary tubercle pendent by a small stalk; the bone can now generally be thrust back by breaking or bending the stalk by which it is attached, and, if necessary, may be retained in position by a suture passed between the cut surfaces of the septum nasi. In cutting the septum, either very blunt-edged bone nippers should be used, or the section should be effected very slowly—that is, the blades should be gradually brought together, a minute being occupied in the process. If the artery of the septum should bleed, its orifice should be touched with the actual cautery. In dividing the septum nasi, therefore, a cautery should be at hand.

In cases where the intermaxillary bone deviates laterally, or is twisted on its stalk, it must if possible be forcibly turned into a proper position. When the intermaxillary tubercle is everted high above the proper level of the lip or the nose, it may be impossible to restore it to its position without misconnecting it from its attachment to the septum nasi. Even in such a case Mr. Butcher suggests, and I think with great propriety, that we should make an attempt to save it by paring its sides, and also the edges of the front part of the fissure between the maxillary bones, and fixing the detached bony tubercle in the front part of the cleft, by means of a harelip pin thrust across from one maxillary bone to the other.

Where there is this eversion of the bone, the columna nasi is of course displaced, and there is no separation between the nostrils, the mouth and nostrils being merged into one vast chasm. After the restoration of the bone to its place, the soft parts covering it, being detached from their bony connexions, must be shaped so as to form a new columna, which must be pinned into place between the sides of the harelip at the upper edge of the wound.

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# THE NATURAL HISTORY & TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By RICHARD BARWELL, F.R.C.S.,

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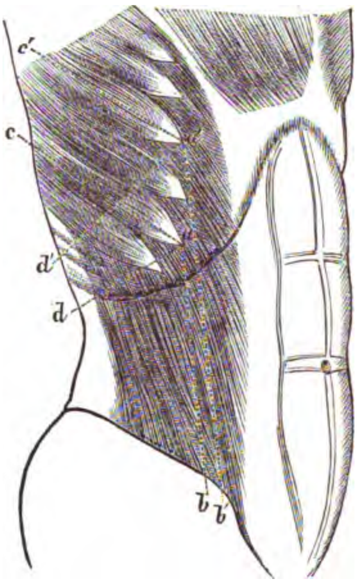
## No. III.

IN my last paper on this subject, the torsion and consequent lateral deviation of dorsal vertebræ was ascribed to two causes: to unequal weighting of the arms, the less important; and to exaggerated pectoral breathing, the more important and more frequent origin. It was stated also that the secondary or lumbar curve originates in a somewhat different manner, and presents appearances peculiar to itself, in each class of case. Let us rapidly review the capabilities of certain muscles affecting the spine. It has been stated (*vide* No. I. of these papers) that the normal antero-posterior flexion of the spine is produced by muscular power, the starting-point in the infant being the extension of the thighs for locomotion, which produces tilting forward of the pelvis, with tension on the psoas, calling forth the anterior lumbar curve; while the abdominal muscles, also rendered tense by the new position of the pelvis, calls forth, through the medium of the ribs, the posterior dorsal curve, and so on. The erector spinæ muscles, when the column is thus bent, are placed at a certain mechanical advantage; if, on the contrary, the spine remained straight, such muscles, lying along and close to its axis, could exert but very little power. But in a lateral direction the normal spine is straight; therefore these erectors, so often falsely accused, and so unjustly cut, can have nothing to do with the commencement and origin of a lateral curve either primary or secondary. Yet when the spine becomes bent, then these muscles may act in certain methods, and it is in the distinction of these methods that the difference between the production and appearance of secondary curvatures in the two classes of cases lies.

When a person carries a weight on the right arm and shoulder he inclines the body to the left side, producing a simple spinal curve to the right. If the weight be sufficiently large, and so frequently carried as to fatigue the muscles, the upper part of this bend, becomes, for reasons already described, so exaggerated, that to preserve the necessary equipoise of the body a contrary or compensatory curve must be formed in the loins.* This necessary action has the evil effect, however, (since two curves in the same length must be closer than one,) of rendering the dorsal curvature very much sharper in some part of its arc; and, moreover, now that the spine is curved, the mere downward pressure of the weight acts to great advantage in augmenting the deflexion, and chiefly, of a course, upon those vertebræ which have deviated most from the straight line. But also, "now that the spine is curved," the erectores spinæ gain power to act in lateral direction, and, of course, with most advantage upon those vertebræ which are furthest from the mesial line—i. e., upon those which, being chiefly affected by the weight, are in most need of support. We therefore find, in all cases originating in weight-carrying a line of strong muscular action and development running from the ilium to the vertebræ which have chiefly erred.†

The production of a compensating curve in the much more frequent cases of respiratory origin is very different. In normal breathing, inspiration is produced by descent of the diaphragm, together with relaxation of the abdominal muscles and protrusion of the belly. When such movement is restrained by any pressure over the abdomen, this relaxation is prevented; but the same cause does not prevent, indeed it rather abets, constant contraction of the abdominal muscles. The spine, however, twisting to the right, appeases the tension of the left side, while that on the right is increased, not merely by this twist, but by the respiratory elevation of the ribs. Thus upon the ribs two forces act at an angle to each other. The resultant motion must, by the law of composition of forces, be in a line bisecting this angle, and must act upon that part of the next movable portion of the body where these lines of force converge. The accompanying diagram shows the effect on the ribs to which both muscles are attached. When on the living person or dead subject we mark the two muscles or lines converging upon each rib, then bisect the angles, and continue the bisecting lines round to the spine, we shall find them all converge to a space between the first and third lumbar vertebræ. It is here that we find the chief effect of this lateral action of the abdominal muscles is expended in bending the ribs, serratus, spine, and all *en masse* towards their own side, and cause a bending sideways—i. e., lateral curve at the loins. Hence, in cases of respiratory origin, unless far advanced, we find on the left side absence of that strong line of muscular development above mentioned, as present in the other cases; and we find instead on the right side a singular tendency downward of the two lower ribs, a remarkable dragging downward of the abdominal muscles, and, what will most strike the unaccustomed observer, a twisting of the umbilicus.



*a b*, and *c' a b'*, the angle of serratus and lateral oblique at seventh and ninth ribs; *a d*, and *a d'*, the disecting line.

Many of the more minute points in the causation of lateral dorsal curvature have been necessarily omitted, lest, however interesting to the observer, they prove wearisome to the reader. Nevertheless, it is essential that we trace, however shortly, the origin of curvatures primarily lumbar. We have seen that in a large number of the oft-recurring actions of the body the spine bends alternately to right and left. This flexibility permits, in walking, sufficient change in the centre of gravity to prevent falling, without causing ugly and fatiguing swinging of the body. In pacing even along level ground, each side of the pelvis is alternately raised, the whole transverse axis becomes oblique, and thus, to keep the centre of gravity within the line of support, the loins form a bend, with the convexity to the depressed side, while the dorsal spine is thrown into a contrary or compensating curve. The column therefore is thrown into changing wavy curves of exquisite beauty. Such action is more manifest in the back of one sitting on a prancing horse or sailing over a chopping sea; but it is most thoroughly to be observed by seating an individual sideways and barebacked, on a plank contrived to rock on a fitting support placed under the centre of gravity. An observer standing behind the subject of experiment will see alternating undulations of the spine, as depicted in the accompanying diagram. If the whole spine remained at right angles to the pelvis when its transverse axis became oblique (1 and 3, A A), the line of gravity would fall outside the support; therefore the spine bends to the right. Moreover, since the centre of gravity lies so low in the body, this bend must be sharp. If the upper part of the trunk followed the direction of the loins (1 and 3, B B), the balance would be over-corrected; hence the dorsal portion must assume a contrary curve. These movements, though owing to the necessities of balance, are of course produced entirely by muscular action.

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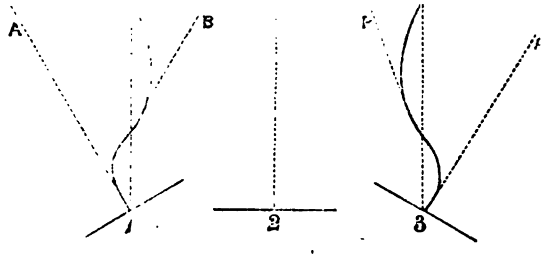
* Such posture is, of course, produced by the action of the quadratus lumborum and psoas muscles.

† This must not be confounded with the protrusion caused by rotated transverse processes.

Since, then, in the ordinary movements of the body, elevation or depression of one side of the pelvis produces lateral flexion of the lumbar spine it follows that, if any cause render such pelvic obliquity constant, the lumbar curve will be permanent. Thus an individual with a varous foot an anchylosed knee, or contracted hip, being forced to curve the back in a manner compensating the pelvic obliquity, will, after a time, most certainly acquire a morbid bend of the spine towards the lower side of the pelvis; and although in the early part of the case, such curve is annulled when the pelvic obliquity is for a time artificially corrected, or when the patient lies down, yet it will after a time become permanent, and does not thus disappear.



2, The horizontal position. 1 and 3, Rocking to right and left. The dotted lines, A A, the direction of lower lumbar vertebræ. B B, The direction of dorso-lumbar spine. The central dotted line, a perpendicular. The dark lines, curves of spine.

From this statement it becomes evident that bad habits of walking or position, which render the pelvis oblique, will also produce lumbar curvature with a rapidity proportionate to the inveteracy of the habit. The potency of a cause which at first glance would appear so slight will be more readily appreciated if the attachment of muscles supporting the lumbar spine on the pelvis be considered.. The quadratus has, of course, its very manifest action in this way; indeed, Herr Werner mentions a case in which a young lady of eighteen, finding that her sweetheart was charmed by such posture, so constantly stood with the weight falling on the right leg, and that hip thrown outwards, that she produced lumbar curvature.* The psoas, however, has more marked influence: since, as it passes between the loins and the thigh many positions of the lower limb strongly affect the spine.† Thus, therefore, such freaks as constantly throwing the weight on one and the same limb, sitting on one haunch-bone with the opposite leg crossed, turning one knee, in, &c. &c., must exert considerable power over the spinal column; and if such habits be constant, and always on the same side, they are very liable, in growing persons, to produce a permanent deformity. This, however, comes on so slowly as to be rarely detected by daily companions, but is generally first observed by a dressmaker or dancing-master, who remarks that one or the other hip protrudes.‡

In order to present the etiology of these curves in as succinct a form as possible, all mention of rotation has been omitted. We found that in dorsal curvatures rotation was, in the sequence of causes, the primary event which, partly by the mechanical effect of weight, partly by the new direction in which the erectores spinæ act, gave rise to lateral curvature. The same mechanical effect of weight acts also in these cases after a different sequence. If we apply to a bent spring a force which acts in a direction different from the chord of its curve, the spring twists; or if on a column already bent, say, to the north, we apply weight on the eastern edge of its summit, the column will curve to the west, will lose some of its northern bend, and will twist. So the lumbar vertebræ, already bent forward, place themselves, by the muscular acts above-mentioned, so as to receive the weight on their sides; and they must therefore twist. An explanation somewhat similar to this was first given, I believe, by Mr. Bishop. This torsion takes place from the concave side, and the transverse process on that side sink towards the abdomen, while those on the convex side rise in the loins, lifting the muscles with them, and causing them to appear enlarged. I have once or twice referred to this fact, warning the reader against mistaking it for active enlargement; because such mistakes have given rise to sundry infelicitous errors in theory and practice.*

Thus far, and as closely as my limits will permit, have been traced the origin and history of lateral curvatures. Before passing on to the means of cure, it will be desirable to examine the reasons for believing that even a great degree of curvature may be alleviated or cured by a judicious system of treatment. Certain cases, to be cited hereafter, will practically demonstrate this curability. We have now only to do with pathological considerations. There are in the various pathological museums of London several specimens of spines laterally curved; but nearly all these are rickety cases, and all the others which I have seen have been old bones, certainly not under forty years of age, and in which, therefore, deformity must in all probability have lasted twenty years at least. It is hardly necessary to expend argument in proving such cases incurable. On the other hand, the true lateral curvature (i. e., not rickety) of young people is quite curable, if for the dorsal form all imprisonment by dress or otherwise be avoided, if for the lumbar form bad habits be checked, and the effects already produced be counteracted by suitable means. For it must be remembered that all flexion, extension, and rotation of the vertebræ are permitted only by compression and twisting of the intervertebral substance; the bones do not yield in the least The question, then, to be solved is, what duration of a constant malposture will render the resulting change of form in the intervertebral fibro-cartilages permanent? I know of no direct means whereby this question may be answered. A belief expressed at the Royal Medical and Chirurgical Society, that all lateral curvatures accompanied by rotation are incurable, affects only the choice of treatment. Nevertheless an indirect method of answering this question by estimating the resiliency of the intervertebral substance lies within our reach.

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* Grundzüge der Orthopädie, p. 65.

† This influence causes the powerful incurvation of the loins to be so constant a symptom in the later stages of hip-disease.

‡ In curvatures primarily lumbar, protrusion of a hip—in those primarily dorsal, prominence of a shoulder—first attracts attention.

* Singularly enough, M. Guérin, who first originated this operation, has divided the muscles, sometimes on the convex, sometimes on the concave side of the curve, with, according to his published writings, equally brilliant results.

Let us recall what has already been stated: that the infantile spine is quite straight; that the subsequent normal curves produced by muscular action are permitted by the compressibility of the intervertebral substance. Herr Hirschfeld, of Prague, the first to doubt that the thickness of the vertebral bodies varies with the direction of the curves, goes further in his experiments. He cleared from a spine all the muscles, leaving the ligaments intact; then, by cutting through all the pedicles, separated the bodies. All the normal curves disappeared, the intervertebral substances increasing their thickness behind in the lumbar and cervical regions, in front in the dorsal, and decreasing on the opposite aspects.

I have not been able to discover the age of the subject in the above description, and therefore twice repeated for myself this troublesome experiment: once on a subject aged thirty-four; and again on one aged forty-three. Precisely the same result followed, nor could I find any difference between the two in the rapidity with which the spine became straight. Thus although in these cases the intervertebral cushions had been subject to compression on one side and elongation on the other during thirty-two and forty-one years respectively (I deduct two years for infancy previous to walking), yet these substances retained all their elasticity. Therefore a lateral curve must have lasted a long time before those cushions lost their power of recovery. There then remain only for treatment, in all but very old cases, two conditions: one-sided muscular action and possible shortening of ligament. Thus, certainly, if the spine, when the patient lies down, resumes in any appreciable degree its normal shape—i. e., if the curve diminishes, even in a small degree,—that curvature is curable.

When we have succeeded in tracing a malady to its cause, and if that cause can neither be remedied nor alleviated, we shall have only succeeded in discovering an inefficacy in our art; but, on the other hand, if that cause be remediable the best remedies are those which are simplest and most direct. I have endeavored to apply this principle to the present subject; and though the treatment of lumbar curvature is too long a matter to consider at the end of a paper, I will by relating a case, endeavor to give an idea of what I mean by *directness* in treatment. It must not however, be imagined that an established curve can be so easily remedied. The case simply shows that, by counteracting its causes, a nascent curvature may be prevented.

Miss A. W——, aged nineteen, had long been the subject of a strumous inflammation of the left knee, which occasionally had brought her under the threat of amputation. When I saw her in January, 1861, the swollen joint was discharging by three sinuses, from which small particles of bone had frequently come. In eighteen months she was able to walk with the aid of a stick. After an interval of two years, on seeing her again, I observed that the lumbar spine was crooked, although she wore a thicker boot on the left foot. This curve continued while she sat on a level seat, and only partially disappeared when she lay down. Seeing that she walked and stood a great deal, and that the obliquity of the pelvis caused the spinal curve, I wished to counteract this effect by placing her while sitting in such a position as should reverse this obliquity. I carefully measured the difference in length between the two limbs, and caused a cushion to be made of such wedge-shaped form as should, when she sat upon it, lift the right side of the pelvis to the same extent as it was depressed in standing. This, of course, reversed the pelvic obliquity, and in time caused the spine to curve while she was seated in the contrary direction. This means and a bandage, to be hereafter described, sufficed to annul the lateral curvature.

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# ON GASTRODYNIA.

By W. H. Day, M.D., M.R.C.P.,

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There are few more painful affections, and very few more difficult to cure, than that peculiar functional derangement of the stomach known as gastrodynia, or gastric neuralgia. We know that neuralgia may arise from functional or organic causes. The nervous system may be sufficiently deranged to pervert the function of sensation, varying in degree from mere tingling and numbness, to positive and unendurable pain. Angina pectoris, colic, gastrodynia, irritable testicle and uterus, are all familiar examples of altered sensation, and of agonising pain in the sympathetic system, or in one or other of its nervous ganglia. When the nerves of special sense are affected, we have tinnitus aurium, muscæ volitantes, and alterations of smell and taste. Looking to organic change as one of the causes of neuralgia, we may have lesions of the brain or spinal cord, and the pressure of tumours and spiculæ of bone, irritating the nervous centres. There is pain down the left arm from disease of the heart, pain in the right shoulder from structural change in the liver, and sciatica sometimes springs from disease of the hip-joint. A cancerous growth of the stomach, in its early stages, will cause precisely the same train of symptoms as gastrodynia, arising from poverty of blood and defective assimilation. Gastrodynia occurs under a variety of circumstances, sometimes selecting for its victims the apparently strong and plethoric,—at others the the temperate and intemperate; but the nervous, the anxious, and the anæmic, and those of feeble constitutional vigor, are most prone to the affection. Those who indulge largely in food and stimulants, and take little exercise, are often the subjects of it. In most cases the circulation will be found at fault, and the nervous system imperfectly nourished. It is met with in persons of sedentary habits, and is very common in rural districts among the poor, who drink strong and hot tea, and scarcely ever taste animal food. I regard tea-drinking as a most common cause, and in men I have several times traced the misery to drinking coffee after a full dinner. The lower class in the north of England, who eat oat-cake, suffer greatly from gastrodynia. These are the most obstinate cases to treat, and they will not yield to treatment till the diet is improved. This complaint is usually met with in middle life and in women more frequently than in men. The pain of gastrodynia is peculiar and almost characteristic; it is referred to the situation of the solar plexus, to a spot not larger than a shilling in some cases,[*] whilst in others it occupies the whole epigastric region, shooting through to the back, beneath one or both scapulæ. When the pain is severe, and the patient has fasted some hours (and he will avoid eating to escape the torture that ensues), the stomach becomes enfeebled, and there is much flatulence. The over-distended stomach will of itself produce the phenomena, but in addition it will press up the diaphragm, and so mechanically interfere with the proper rhythmic action of the heart, causing palpitation, dyspnœa, faintness, and even syncope. After these attacks (for the pain often comes on in paroxysms of severity), patients frequently complain of superficial soreness and pain, so that they cannot bear the weight of their clothes. Some cases are relieved by taking food (probably from the temporary increased secretion of gastric juice); other cases are greatly aggravated by it, and there is positive torture until the food is rejected by vomiting, or it has passed through the pyloric aperture. Brodie has said that, since gastrodynia most frequently occurs in atonic cases, and often depends upon flatulence, any diffusible stimulant, giving temporary tone to the stomach, and causing its muscular fibres to contract and expel flatus, will give temporary relief. In many cases there is neuralgic headache, as a sympathetic action through the vagus. When this is present, it greatly assists our diagnosis of the cause of the epigastric suffering. The pain is far greater than the ordinary pain of dyspepsia; it is not the burning pain of gastric ulcer, nor the sharp and lancinating pain of cancer; it is a pure neuralgia—a dull, heavy, gnawing pain; and whatever exhausts the nervous system, as grief, anxiety, fear, bad living, &c., favors the complaint. It is now and then attended by hypochondriacal symptoms, and depression of spirits. Anæmia is a most fruitful source of this affection, and tubercular disease of the lungs is a frequent accompaniment. As in gastric ulcer, constipation and amenorrhœa are often present, and for the same reasons,—viz., the small amount of food which is taken, and the bloodless condition of the patient.

*Treatment.*—Under this head I shall speak, separately, of the chief remedies which have been tried from time to time. If the digestive organs are much deranged, and there is acidity, with a thickly-coated tongue, and especially if there is pyrosis, then magnesia, soda, and bismuth or lithia are of service. These may not be enough to effect a cure of themselves, but they put the stomach in better order, and fit it for other remedies. I do not wish to underrate these medicinal agents, but I have not found any great benefit follow their employment. Their prolonged use weakens the digestive functions by neutralising the acids of the acidulated pepsine, which is the solvent for the nitrogenous or flesh-producing ailments, and there can be no doubt that many cases of habitual indigestion are owing to the frequent and indiscriminate use of these alkalies. When given, I prefer them in combination with sedatives, as prussic acid, and very small doses of morphia. If the tongue is reddish at the tip, with prominent papillæ, and there are signs of gastric irritation, bismuth is a remedy of great value. It will be of benefit only when there is excess of secretion on the part of the stomach. When the tongue is clean and pale, it does positive harm. Sometimes small doses give relief; but if the case is obstinate, large doses (from ten to fifteen grains) will prove effectual where smaller doses would fail. I prescribe the liquor bismuthi (Schacht), one drachm, with the same quantity of syrup of ginger, and two minims of the dilute hydrocyanic acid, on an empty stomach, three times a day before meals.[*]

Preparations of iron are especially to be recommended, from the unhealthiness of the blood, and the general debility which is usually present. I have seen most benefit derived from the citrate of iron and strychnine, in doses of four grains in an ounce of water, three times a day, taken after food. This is a most valuable medicine when the tongue is clean and pallid, and it is particularly indicated if the pain is at all paroxysmal. Occasionally in this disorder, and in other debilitated states of the system, this preparation of iron and strychnine does not agree; and lately two cases have come under my notice in which headache, sickness, and great nervous agitation followed each dose. The same unpleasant symptoms have resulted when the remedy was prescribed in doses of two grains. I need scarcely say under these circumstances the medicine must be given up directly. Sometimes the ammonio-citrate of iron will effect a cure after this has failed. At the same time that these remedies are given, counter-irritation over the epigastrium is often of much service.[†] In one case, attended with great anæmia, and extreme feebleness of digestive power, five minims of the tincture of the sesquichloride of iron, given three times a day in an ounce of water, effected a cure when all other remedies that were tried, so far from relieving the pain, tended materially to increase it. The nitrate and oxide of silver are not always to be relied on, but they occasionally come to our assistance when other remedies have ended in disappointment. The most obstinate cases have recovered after other medicines had been given in vain. They are most suitable when the tongue is clean and pale. The oxide has rendered me the most service.

The purified oxide of manganese has been recommended in doses varying from five to fifteen grains, three times a day, on an empty stomach. It may be given in the cases for which we prescribe bismuth, and I am compelled to say I have seen benefit derived from it, though it does not prevent a return of the complaint, like the preparations of iron, when they can be tolerated. The mineral acids, which I prefer to give alone with water, are very useful in many cases of gastric pain, and where the action of the liver is sluggish. They may be given when the urine is turbid and high-colored; and, in fact, as the symptoms improve, the urine will soon become clear. I give the acids in full doses—five minims of the dilute nitric acid, and ten minims of the dilute hydrochloric acid, in an ounce of water—an hour before meals, These acids now and then greatly aggravate the pain of gastrodynia. If the bowels are costive, a pill of Barbadoes aloes, capsicum, and quinine, given daily before dinner, will hasten the cure. It is not so much to the remedy which the physician prescribes, that he must attribute his success, as it is to the nice discrimination of all the points that are presented to his view; how he may attack the strongest, yet protect the weakest; how best meet a case having many prominent symptoms, and combat those first which are the most important. On the judicious selection of these for management, the issue may altogether depend.

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[*] These are by far the most difficult cases to treat; they resist one remedy after another. I have found preparations of iron and counter-irritation most applicable to this class of cases.

[*] The trochisci bismuthi contains two grains of bismuth in each lozenge, and several may be taken with advantage during the day.

[†] The emp. picis co., to which three or four grains of tartarised antimony is added, answers well; the size of the plaster should be about three inches square.

I have selected a few cases which best illustrate the plan of treatment recommended:—

Case 1. *Gastrodynia; treatment with oxide of silver.*—Mrs. S——, aged forty-two (May, 1862), has suffered at intervals during the past thirteen years from pain at the pit of the stomach, and nothing afforded relief for any length of time. She now complains of constant aching at the epigastrium, accompanied with great flatulence, palpitation, and lowness of spirits. Has headache, coming on usually at night. The tongue is pale and swelled. All the symptoms are aggravated by eating. Pulse 80, very weak. She was ordered the mineral acids, with chloric ether and infusion of colomba, three times a day.

May 28th.—No improvement; pain and flatulence very great; tongue a little furred. She was ordered three grains of the compound rhubarb pill and one grain of capsicum before dinner daily, and the following draught three times a day:—Aromatic spirit of ammonia, half a drachm; chloric ether, ten minims; tincture of ginger and compound tincture of lavender, of each half a drachm, to an ounce and a half of water.

June 16th.—No benefit. Ordered one-twelfth of a grain of morphia and three grains of bismuth, in a pill, to be taken three times a day.

Aug. 3rd.—She has been much better; but the pain and distension are very trying.

20th.—Being still about the same, I prescribed the following pill three times a day, and all other medicine was omitted: Powdered rhubard, half a drachm; oxide of silver, six grains; muriate of morphia, a grain and a half; confection of roses in sufficient quantity to make twenty pills.

April 1st, 1863.—She now complains of a slight return of the symptoms, after entire freedom from headache, palpitation and pain during the winter months. She resumed the medicine, and lost the symptoms entirely in a week. In January, 1866, she had had no return, had gained flesh, and was perfectly well in health.

Case 2. *Gastrodynia; treatment with mineral acids and steel.* G. A——, aged twenty-five, unmarried, a seamstress by occupation (April 13th, 1861). She complains of a heavy dragging pain at the pit of the stomach, always aggravated by taking food. She never vomits her food; the pulse is small and quick; the face pasty and pallid; there is amenorrhœa and constipation, palpitation, and a very perceptible anæmic bruit over the base of the heart. She was ordered the mineral acids, with tincture of nux vomica, three times a day, before food, and a pill twice a week, consisting of compound colocynth pill, extract of hyoscyamus, and capsicum.

25th.—She has derived some benefit, but is very weak; the bowels now act well. Ten minims of the tincture of the muriate of iron were added to each dose of the mixture.

29th.—She has entirely lost the pain. To continue the mixture for a month.

Case 3.—M. S——, aged fifty-one, married (April 4th, 1861), has suffered from gastrodynia for many months, and can get no relief. She is a sallow-looking woman, and has cataract in both eyes. She drinks a great deal of tea, and says she cannot afford meat. The tongue is large, pale, and clean; the pulse very weak; there is constipation and great flatulence. Similar treatment to that in case No. 2 was adopted, and she expressed herself as quite well on the 25th.

Case 4. *Gastrodynia; treatment by iron and strychnine.*—F. M——, aged twenty-three, single (April 20, 1864), by occupation a servant; a pale, melancholy-looking girl. She has constant pain in the stomach, and is afraid to eat. There is headache, with feeble pulse, and great nervous debility. Tongue clean, red, and fissured. Has been taking "thick white medicine" for a month without relief. She was ordered the following pill, three times a day:—Citrate of iron and strychnine, three grains; quinine, one grain; confection of roses in sufficient quantity. She was quite well in a month.

In Jan. 1867, she applied again, with similar symptoms, and stated that at the close of last year she had spitting of blood. A physical examination of the chest revealed tubercle in its early stage of development, and I should therefore despair of affording any lasting benefit.

Case 5. *Severe gastrodynia, complicated with hepatic congestion.*—R. P——, aged fifty-three (July, 1863), married, a gamekeeper, complained of great pain in the stomach, and inability to digest food. He was so worn and emaciated that I strongly suspected malignant disease. Has been unable to follow his employment for six months, and no medicine has done him any good. The urine is acid, scanty, and high-colored; the tongue is thickly coated; there is great flatulence, pyrosis, and cardiac uneasiness. He was ordered bismuth and magnesia, with dilute hydrocyanic acid, and chloric ether.

Aug. 1st.—There was no material improvement. Tenderness existed over the region of the liver and he had a very sallow aspect. In addition to the mixture, he was ordered one grain of blue pill, and four grains of the extract of taraxacum, every night for a week.

6th.—He was much improved in every respect. The infusion of colomba was added to the bismuth draught.

10th.—The tongue was clean, and the urine clear. There was no pyrosis, and the pain had much abated. Ordered the bismuth to be omitted, and one teaspoonful of the following mixture to be taken in a wineglassful of water three times a day:—Citrate of iron and strychnine, two drachms; water, four ounces.

Sept. 5th.—He was quite well, and able to resume his work, having gained flesh and strength, and being entirely free from pain.

In July, 1864, there was a return of the symptoms, which gave way in a week to the mercurial and steel. There was in this case some hepatic congestion, not very apparent on examination, which accounted for the symptoms so speedily yielding when the blue pill was prescribed.

The following case is another example of the advantage of similar treatment:

Case 6. *Severe gastrodynia; hepatic congestion.* E. M——, aged twenty-eight (May, 1862), a clergyman, suffered severely for upwards of two years with similar symptoms to those of Case No 5. and all medicines failed to give him relief till he took a little blue pill. He was exceedingly thin, and had no appetite, and a feeble pulse. I prescribed bismuth, magnesia, and colomba before lunch and before dinner, and the following pills twice a week at bedtime:—Mercury pill, twelve grains; extract of hyoscyamus, ten grains; compound rhubarb pill, two scruples: divide into twelve pills, two to be taken for a dose. He was quite well in a month, but could never tolerate any preparation of steel.

About this time another clergyman consulted me with very severe gastrodynia, and after trying several remedies to no purpose (including bismuth in a mixture), the following pill three times a day completely cured him:—Subcarbonate of bismuth, one drachm; powdered rhubarb, one scruple; muriate of morphia, two grains; powdered capsicum, ten grains; in thirty pills.

Notwithstanding the best-directed treatment, cases now and then go unrelieved, and we are obliged to admit the inefficacy of medicine to deal with them. The following cases are examples:—

Case 7. *Severe gastrodynia; no relief from treatment.*—H. W——, aged twenty-seven (April 22, 1864), a cook, fat and flabby; had fever fourteen years ago, and lost "small bones from the ear"; very deaf ever since. She has had gastrodynia for the past ten years at intervals; had synovial inflammation of the right knee-joint a year and a half ago. The tongue is large, pale, and fissured; the gums white, and teeth large and irregular. There is occasional headache on one side. The bowels are regular; there is flatulence, unattended by pyrosis. The following are among the remedies unsuccessfully prescribed:—

Dec. 31st, 1863.—Subcarbonate of bismuth and carbonate of magnesia, of each two grains; muriate of morphia, one grain; to be made into twelve powders. To take one in a little milk, three times a day.

Jan. 12th.—Great relief followed, till

March 22nd, when the pain returned as violently as ever. A liniment was rubbed over the epigastrium night and morning, and a pill of steel, quinine, and rhubarb taken three times a day.

April 7th.—Pain is not mitigated. The oxide of silver, with rhubarb, and very small doses of morphia and capsicum, were prescribed.

10th.—No relief whatever. Ordered the purified black oxide of manganese, in doses of ten grains, three times a day, and counter-irritation over the epigastrum.

22nd.—The pain subsided for four days, and then returned as acutely as before. The citrate of iron and strychnine was now given, and this afforded relief for a week. I did not see her again till

July 13th, when the pain was again most severe. She was admitted into the Cambridge Hospital, and came out much relieved. Some time after, I heard that her suffering was so great that she had to give up her situation as a servant.

On referring to my note-book I find that a nobleman consulted me, for atonic neuralgia of the stomach, on the 29th of April, 1861. He was sallow, and had a worn and exsanguine aspect. The suffering had been of ten years' duration, coming on invariably at night, and depriving him of rest and sleep. He would get up and walk for hours in his room. He had always been most temperate in his habits, and never smoked. Two of his family died of malignant disease of the stomach. The tongue was tolerably clean, the bowels regular, and the urine clear. There was no vomiting, no flatulence, no headache, only the severe, gnawing, incessant pain. His diet consisted of cocoa, milk, and arrowroot. He described himself as a complete "vegetarian," and said travelling from place to place did him more good than all the physic he had ever taken. He had consulted the most eminent men in London and Paris, without deriving the least benefit; on the contrary, medicines increased his sufferings by acting as strong irritants. I once prescribed for him, and added greatly to his misery; and this had been the case with others who had been consulted. A month ago (June, 1867), he told me that he now ate pastry, and almost any kind of diet, and never felt the slightest pain whatever. His general health and strength had vastly improved.

**Manchester-square, W., Aug. 1867.**

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## CLINICAL NOTES.

### No. I.

### FUNCTIONAL DISEASE OF THE COLON:

### CATARRH; FLATULENT DISTENSION; FERMENTATION; CHRONIC MUCO-COLITIS.

By S. O. Habershon, M.D.,

**Physician to Guy's Hospital, etc**

Some morbid conditions of the colon have scarcely received the attention which they deserve; and they are often referred to the stomach. I do not allude to acute inflammatory change as seen in the coats of the cæcum, nor to acute disease of the colon such as is present in dysentery, in acute ulceration, in diptheritic inflammation; nor to fibroid and cancerous diseases. These diseases have their distinctive symptoms; whilst others less severe in their character are often overlooked, or they are misunderstood. One of these ailments is, I believe correctly, designated chronic muco-colitis, or *catarrh of the colon*.

In the year 1859 Dr. A. Clark described, in The Lancet, some instances of mucous discharge from the rectum; but in the cases to which I allude the whole of the large bowel is affected, and the abnormal discharge just referred to is not always a prominent symptom.

The indications of this affection of the colon may be briefly enumerated. The action of the bowels is irregular, the evacuations being at the commencement hard and consistent, but afterwards semi-liquid: this alternation often takes the form of constipation followed by diarrhœa; at other times small scybalous masses only are passed, with a considerable quantity of gas; and thirdly, the ejecta may consist only of mucus, gelatiniform in appearance, or of long worm-like masses, resembling entozoa. These discharges are in some cases unusually offensive in their character, and thus induce increased distress to the patient. In rarer instances the evacuations present a frothy yeast-like appearance, as if the fæcal contents of the colon had undergone fermentation. Another symptom, and a very characteristic one, is flatulent distension of the colon; this distension comes on several hours after a meal, and is often a source of annoyance to the patient during the night. Pain may be entirely absent, but attacks of griping pain often come on in the course of the colon (not always in a fixed position), and leave some tenderness. If the irritation extend to the rectum, then pain during defecation and tenesmus are of a more marked character. The general strength is not much impaired, and the patient states that he would be quite well if the bowels were quiet; but more frequently there is pallor, and an inability to bear wonted fatigue. The nervous system is manifestly not in its full vigor, and the vaso-motor nerve is so sensitive in its sympathetic connexions that, when the bowels are acted upon, there is often a sense of great prostration produced, or even syncope. In other cases there is general depression, almost amounting to melancholia, and there is inability to take active exercise, or to grapple with the worry and fatigue of ordinary life. The tongue is clean, the pulse quiet, but compressible, the appetite good, and the stomach is apparently equal to primary digestion. In men, the bladder sympathises, and there is sometimes the frequent desire to pass urine; in young women, I have frequently found this state of the colon associated with dysmenorrhœa and ovarian irritation. In young children this sympathy is shown by muco-purulent discharge from the vagina, and by external irritation and erythema. Again, in advanced life, it seems to perpetuate and to aggravate, if it do not induce, that most troublesome form of hyperæsthesia, pruritus of the external sexual organs.

When the malady which I have thus briefly described is acute in its character, the catarrh of the colon manifests itself by diarrhœa, the evacuations containing much bilious-colored mucus, and by sympathetic irritation of the adjoining structures. The chronic form of catarrh consists in a disordered condition of the mucous membrane, and is sometimes the sequel of the acute attack, or of more severe forms of inflammatory disease. The mucous membrane sometimes presents cicatrices, but the disease has then supervened upon dysenteric affection. More frequently grey zones are observed around the follicular glands, the pigmentary deposit showing the former congestion of the vessels; the mucous membrane is thickened, and if the mucus be examined by the microscope, corpuscles of various size will be observed, and sometimes the secretion has an evident tendency to fibrillate; small scybala are often found in the sacculi of the intestine; the muscular coat is weakened and the bowel distended sometimes to a great extent, the larger calibre of the intestine requiring proportionately increased power for the propulsion of the contents. The transverse colon is sometimes noticed to make a curvature downwards, and forms almost a second sigmoid flexure. But these pathological changes of structure and secretion do not guide to the full explanation of the symptoms; or the contents of the intestine undergo fermentative changes with the evolution of gaseous products, and this distension becomes the cause of pain, and of the distressing symptoms already enumerated.

This condition of catarrh of the colon is augmented by hepatic congestion; the inferior mesenteric veins and the hæmorrhoidal veins become distended, and the morbid activity of the mucous membrane is thereby increased.

The constant use of powerful drastic purgatives is a fertile source of disease of the colon: the oft-repeated irritant effect produces persistent congestion. Neglected constipation is another cause of catarrh of the colon. Hæmorrhoids, also, becoming inflamed, transmit irritation continuously upwards to the sigmoid flexure, and to the colon. Other sources of aggravation or of predisposition are frequently present; and I have found this catarrhal state in ague, in gout, and in diabetes. The habit of taking snuff, and of smoking to excess, may also induce it.

The condition I have been describing is widely different from the serous diarrhœa so often observed in disease of the kidney; and although it may be present as the sequel of dysenteric disease and ulceration, it may be quite independent of such changes. It is distinct, also, from the diarrhœa which accompanies atrophy of the mucous membrane of the small and large intestine, as well as from that connected with lardaceous disease of the bowel. As far as this state is constitutional in its character, it is relieved by general treatment; but it often assumes a troublesome persistency as a local catarrh. The colon is so far removed from the stomach by the whole length of the small intestine that it is difficult to apply local agents by the ordinary means, and I find great benefit from the use of enemata.

If the catarrh have flatulence as one of its prominent symptoms, the injection of powdered charcoal with thin gruel often affords considerable relief; at other times borax similarly employed is of service. But where the catarrhal irritation is in the rectum, a dilute solution of nitrate of silver may be used as an injection with great benefit, two to five grains to the ounce.

As to internal treatment, the indications appear to be the removal—1st, of portal congestion; 2nd, of retained scybala; 3rd, of offending mucus; 4th, to check fermentative action in the contents of the bowel; and 5th, to strengthen the patient if there be any constitutional weakness.

Whatever means of relief are used, little effectual benefit can be excepted unless the patient is willing to follow a carefully regulated diet, and to avoid the use of stimulating drinks, especially ardent spirits. Nitro-hydrochloric acid appears not only to lessen the quantity of mucus, but to act beneficially upon the excretory glands. Small doses of blue-pill, combined with rhubarb pill, quinine, and henbane, act more powerfully upon the abdominal glands; but if the mercurial be continued, it tends to augment the malady by inducing greater relaxation of the mucous membrane. Some are partial to the use of taraxacum; but its good effects are quite problematical; and if there be diarrhœa, gallic acid or quinine, with Dover's powder, and ipecacuanha, with krameria or similar astringent products, are of service.

To check the flatulent distension of the colon from gaseous evolution, creasote and carbolic acid hold a deservedly prominent position; and when there is also diarrhœa, *carbolate of lime* may be given internally with marked benefit. The carbolate of lime as prepared by Mr. Squire, of Oxford-street, is perfectly white, and the smell is not so strong as the ordinary carbolate of lime used as a disinfecting agent. I have generally given it in one-grain doses combined with henbane; and I may remark that in the diarrhœa of phthisis, where there is evidence of fermentative changes in the colon, I have repeatedly used the carbolate of lime with good effect. By these and other means the troublesome affection I have described will in most cases yield; but no mere medicinal treatment will suffice unless the patient be a willing and persevering co-operator in carrying out the necessary hygienic and dietetic measures.

Brook-street, Grosvenor-square, December, 1867.

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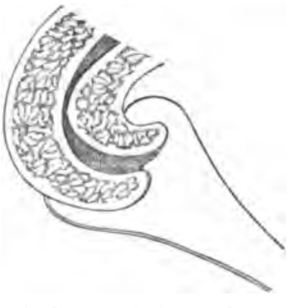
# ON A PECULIAR FORM OF FLEXION OF THE CERVIX UTERI.

By Graily Hewitt, M.D., F.R.C.P.,

Professor of Midwifery and Diseases of Women at University College, and Obstetric Physician to the Hospital.

In the course of the last few years I have met with several cases in which dysmenorrhœa, and, in married women, sterility, have been obviously due to a peculiar form of flexion of the uterine canal, arising from a bending of the cervix uteri at the point where the vagina and the cervix join. The lower or vaginal part of the cervix has become curled upwards and forwards, the os uteri looking, not downwards, but upwards towards the os pubis, in the manner represented in the accompanying sketch. The sectional outline here shown is from a typical case of the kind, the subject of which is an unmarried lady placed under my care by Dr. Hudson, of Cork-street. She has suffered more or less uninterruptedly during nearly two years from scanty menstruation, the discharge being often postponed, and having the appearance of retained blood. Further, she had been the subject of severe sickness, quite uncontrollable by ordinary remedies, occurring at the menstrual periods, and often continuing for some days afterwards. The frequency and severity of these attacks had brought her into an extremely feeble state of health The condition of the uterus—a condition, indeed, precisely such as the symptoms described led me to anticipate—was that depicted in the above illustration. The body of the uterus was a little thrown forwards (anteflexed), but the remarkable feature was the flexion of the cervix at about its centre. The sound could be introduced—as, indeed, is the case in most instances of this kind—by attention to the direction of the curvature of the canal.



In this case, and in many others of the same kind, this form of uterine flexion is productive of serious inconvenience. It does not always occasion dysmenorrhœa; frequently the circumstance that it interferes with impregnation is the occasion of its discovery. Many such cases have been treated as cases of stricture of the cervix, which, indeed, in one sense, they may be truly regarded as being; and it is hardly necessary to remark that stricture, in the true sense of the word, may be associated with this flexed condition of the cervix; but, in the cases which I have seen, there has generally been no difficulty whatever in passing the sound into the uterus when the operation is gone about in a proper manner. The closure of the canal and the obstruction are due to the flexion, the opposite walls being thereby closely approximated, and the canal *virtually* closed.

Flexion of the canal may occur also opposite the internal os, at the junction of the cervix and body of the uterus; and this is, indeed, its most commonest seat; but, in instances of the latter kind, the dislocation, forwards or backwards, as the case may be, of the fundus uteri, is more marked than in the particular class of cases to which attention is here specially directed.

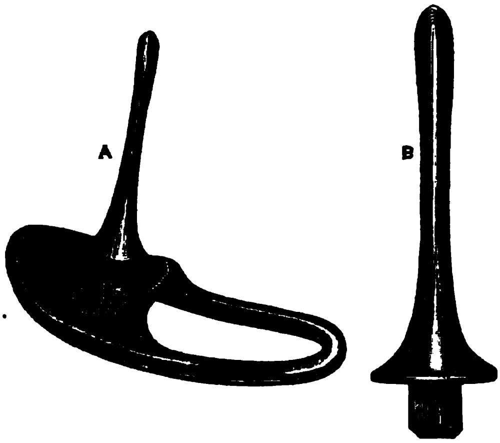
These cases of flexion of the cervix low down have been treated in a variety of ways; sometimes by incision of the cervix, sometimes by amputation of the vaginal portion, the latter procedure getting rid of the part below the seat of flexion altogether. These methods of treatment I have myself also practised; but, latterly, I have attempted, and with some success, to rectify the state of the cervix in a more natural manner.

Occasionally the vaginal portion is unduly long and tapering. In these cases of "conical cervix," as they have been termed, removal of the superfluous portion should be a preliminary; but it is plain that the chief object in view is to straighten the canal and keep it so. This is not to be done at once, or by a single operation, but it can be accomplished in a more gradual manner; the basis of the principle of the treatment being the soft, pliable, and mouldable nature of the tissues of the uterus and its cervix.

A short account of the manner in which the case above related was treated will most expiditiously explain the method I have adopted in this and other similar instances.

Within the vagina was placed an oval gutta-percha ring 2¼ in. long by 1¼ in. wide. The upper half of the ring was closed by a diaphragm of gutta-percha, perforated, and supporting within the cavity of the cervix uteri a straight ebonite plug, the part within the cervix measuring 1¼ in., expanding below in a sort of shoulder, which rested on the diaphragm in the ring before described. When introduced, the effect was necessarily to maintain the canal of the cervix rigidly straight. The instrument was introduced just after a catamenial period; it was worn for three weeks, and removed the day before the next expected period. The patient menstruated the day following its removal, profusely, with very little discomfort. There was no sickness whatever, and a few days later she described herself as feeling better than she had done for many months. The instrument will have to be worn again once or twice, for periods of two or three weeks each, at intervals during the next few months; and it is expected that at the end of that time the relief will have become permanent. In the annexed drawings are depicted the apparatus necessary.

The plug used in the above case was a little shorter than that here represented (at B). The two parts—the support and the plug—are made separate for facility of introduction; but in several cases I have connected the two parts immovably before introducing it.* The apparatus thus described has been worn by some patients for two or three months uninterruptedly and without inconvenience; but it is advisable to remove it during menstruation, when the canal is small. Much depends on the manner in which the instrument is adapted by the size of its different parts to particular cases. It acts as a kind of splint, and, if properly adjusted, is productive of no inconvenience. The patient is able to take moderate exercise, and, after a day or two, is generally unconscious of its presence. The extremity of the plug should only reach as far as the internal os, or at most just a little within it.



The pessary described by me in THE LANCET of Nov. 16th, 1867, for more ordinary cases of anteflexion or anteversion, is also very useful in cases such as those above described; but the procedure now recommended is preferable for the special class of cases contemplated in the foregoing remarks.

Berkeley-square, Jan. 1868.

### ON

## THE ENTOZOA OF ABYSSINIA.†

By T. SPENCER COBBOLD, M.D., F.R.S.,

Lecturer on Comparative Anatomy at the Middlesex Hospital.

I PROPOSE this evening, Mr. Chairman, to discuss two important questions having reference to the welfare of the British troops and others engaged in the Abyssinian expedition. It will simplify the matter to place the two interrogatories together at the outset, and thus inquire: What forms of entozoa occur in Ethiopia and the neighboring territories generally?—and to what extent are these parasites likely to occasion inconvenience or suffering to our troops? It may be remarked at once, that we have no definite knowledge of the actual number of helminth species proper to man abounding in those regions; nevertheless we can, with a probability almost amounting to certainty, point to the presence of at least *eight* different forms more or less prevalent in those parts. In addition to these, it is not unlikely that two other well-known kinds of entozoa—viz., *Tænia solium* and *Oxyuris vermicularis*—will hereafter be recognised as Ethiopian, so to speak. The eight forms alluded to comprise two flukes (*Distoma heterophyes* and *Bilharzia hæmatobia*), two tapeworms (*Tænin nana* and *T. mediocanellata*), and four round-worms (*Ascaris lumbricoides*, *Trichocephalus dispar*, *Sclerostoma duodenale* and *Dracunculus medinensis*); in other words, two trematodes, two cestodes, and four nematodes. Respecting each of these I will now say a few words.

The *Distoma heterophyes* is a minute intestinal entozoon, about one-sixteenth only of an inch in length. Dr. Bilharz, of Cairo, found it twice, in enormous numbers, post mortem; and there is little doubt, from the smallness of its size, that it has been frequently overlooked. However, should it prove ever so abundant, there is every reason to believe that its presence in the living human "host" is incapable of giving rise to any severe or even troublesome symptoms.

We may, therefore, pass to the consideration of *Bilharzia hæmatobia*. This formidable parasite I have so named after its discover, the above-mentioned physician at Cairo. It is more or less prevalent all along the east coast of Africa from Egypt to the Cape, and is likewise present in the Mauritius. Two or three persons as "hosts" have brought it with them to England; and I have myself found it in an African monkey which died at the Zoological Gardens. In this unique genus of flukes the sexes are separate, the males measuring half an inch in length, the females three quarters of an inch. It takes up its residence in the bloodvessels, being most abundant in the veins supplying the abdominal viscera. In that situation it gives rise to a most distressing malady, and is said by Dr. Bilharz to affect at least one-third of the entire grown-up population of Egypt.

In a pamphlet published by Messrs Groombridge, I have already warned the public of the dangers likely to arise from the possible naturalisation of this entozoon amongst us at home; and I may add that the conditions favorable to its establishment in this country are far less evident than obtain in the case of any tropical region. Should the parasite, by any chance, be carried back by native troops to Bombay, I have little doubt as to the serious consequences which would ensue.

The third parasite on our list is a curious little tapeworm called *Tænia nana*. This dwarf cestode measures only three-fourths of an inch in length, and, with the exception of the *Tænia echinococcus*, is the smallest species I can recall to mind at this moment. Though hitherto only once found, it may turn out to be comparatively abundant in Abyssinia. In any case, its presence is scarcely likely to give rise to grave symptoms.

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* For further particulars concerning the construction of this plug-pessary see the new edition of "Diseases of Women," p. 453.

† Being the last of a course of four lectures "On Certain Groups of the Invertebrata," recently delivered at the London Institution.

The parasite next to be considered—namely, *Tænia mediocanellata*—is known to be extremely abundant, not only in Abyssinia, *par excellence*, but likewise in other parts of the world. It has been said that all the natives of Ethiopia are infested with it, and it is well known that the Burates of Asia are scarcely less free. It is especially worthy of notice that the Hottentots of South Africa acquired it during their wars with the Caffres. As Küchenmeister has remarked, they "enjoyed themselves amongst the cattle of the Caffres;" and, he might have added, as a consequence, the Caffre larval tapeworms subsequently "enjoyed themselves" in the intestines of the Hottentots. It is needless to enlarge upon the habits of life which so effectually ensured this result. Let me tell you, as "one of the things not generally known," that this parasite is by far the most prevalent human tapeworm in England. I have reared thousands of its larvæ in veal and beef. It is a delusion to regard pork as the most frequent source of tapeworm in this country, since my extended practical experiences and researches directly prove the contrary. On this score the public are frequently misled by persons who practically and experimentally know nothing about the matter. The *Tænia solium*, I repeat, is comparatively rare.

But I must now pass on to the consideration of the first nematode on our list—namely, the *Ascaris lumbricoides*. This entozoon, the common roundworm of this country, has a wide geographical range, and may be said to abound wherever there is a good fresh-water supply near human habitations. It is extremely common in the Mauritius, and is probably of frequent occurrence in Abyssinia. More accurate data on this score are much required. In like manner, the *Trichocephalus dispar*, though perhaps not actually observed within the Abyssinian territory itself, is known to be tolerably common in Eastern Africa. The former is a hurtful species, but the latter is rarely, if ever, seriously prejudicial to the health of the "bearer."

I come now to speak of a remarkable parasite, the *Sclerostoma duodenale*, which is common throughout Egypt and the Nile borders generally. Though a small viviparous nematode, it is, like the *Bilharzia*, capable of giving rise to a terrible disease. It has been ascertained that about one-fourth of the Egyptian population suffer from its presence. The sexes are distinct, the males being one-third and the females one-half of an inch in length. It is not merely located in Eastern Africa, but is common in Italy, in Brazil, and probably also in some of the West Indian islands. Dr. Hermann Weber has recently published an interesting account of the ravages commmitted by this entozoon in Bahia, (see Path. Trans., vol. xviii.) In all likelihood, the larvæ of this round-worm abound in the waters of the interior of Abyssinia; and it is obvious that, when once taken into the system, the species may be readily transferred to other warm countries, where so far as is at present known, it has not hitherto gained a footing. Clearly there is danger to our troops from this source.

Lastly, there is the well-known guinea-worm, or *Dracunculus medinensis*, about which every traveller and resident in the East pretends to know something. That something, however, amounts to very little, notwithstanding that the literature of the subject is enormous, and extends from the time of Moses down to the present period. Here, I fear, we have no time to enter into the question; but I remark, in passing, that there seems every reason to believe that the so-called "fiery serpents" which attacked the Israelites during their sorjourn in the wilderness were neither more nor less than dracunculi. In localities where the young abound in free state, it is apt to give rise to severe endemics, whenever the locality is visited by numbers of persons insufficiently protected. The British troops in India have often been exposed to such attacks. In some parts of Africa, within limited areas, every native is affected with guinea-worm. It should be borne in mind that the free larvæ and young occur in natural stagnant pools, and in the argillaceous mud of exposed wells, tanks, and other reservoirs. The young females penetrate the skins of persons washing with or bathing in water where they abound.

Time, I see, forbids my entering, at present, into more minute particulars respecting these parasites individually; I will therefore supplement the above observations with a few more general practical conclusions respecting the eight parasites described as more or less prevalent in Eastern Africa. Three of their number may be dismissed as comparatively unimportant. These are, *Distoma heterophyes*, *Tænia nana*, and *Trichocephalus dispar*. In the case of *Ascaris lumbricoides* and *Sclerostoma duodenale*, even though it should be necessary, for final development, that their larvæ enter the tissues of intermediary bearers, there is clearly some danger, since in an early larval stage they must reside in open waters. The last-named parasite, if transferred to Bombay, would soon permanently establish itself there. In like manner the *Tænia mediocanellata* may be yet more readily transported thither, should the Hottentot experiences to which I have referred prove no real warning to the semi-raw flesh eating habits of our troops. The formidable *Bilharzia* will probably be sufficiently guarded against by the avoidance of stagnant waters employed as a drink, but it is quite possible that imperfectly cleansed vegetables may become the medium of their transference to new human "hosts." Lastly, in order to avoid injury from the guinea-worm, it is necessary that the feet and legs be well protected; and in reference to washing or bathing, I would especially recommend the thorough drying of the surface by the somewhat rough use of warm or hot towels. It should be borne in mind that when the military hospitals at Bombay contained 1 per cent. of cases of dracunculus, 24 admissions per 100 from this disorder arose amongst the soldiers serving on the Gold Coast. African negroes have carried this entozoon to the island of Curacoa, where it has since become naturalised. Let not those interested reject the warnings which our scientific researches are calculated to afford. We know, unhappily, from the parallel case of colliery explosions, how commonly people prefer to trust to blind chances rather than to sound advice based upon accurate scientific data. A very few simple precautions, you perceive, may prevent a multitude of evils both present and remote. Let them be taken; and good, which may be unseen by the ignorant, will certainly result. For my own part, I may add that the prospect of this contingent result is the only sure reward which many years of toil bring to an almost single-handed English investigator in this department of experimental and practical zoology.

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### ON THE

## MANUFACTURE AND PROPERTIES OF CARBOLIC ACID.

By F. Crace Calvert, Esq.

As the employment of carbolic acid is daily becoming more extensive, not only as an antiseptic and disinfectant in private dwellings, as well as for public purposes, but also as a therapeutic agent, I hope that it will prove interesting to many of the readers of The Lancet to obtain an outline of the properties, not only of pure carbolic acid, but also such qualities as are best suited for its application as an antiseptic and disinfectant.

Although carbolic or phenic acid, or phenic alcohol (in fact, the latter is the most appropriate name for this substance, as its properties are not those of an acid, but that of an alcohol), was discovered in 1834 by Runge. Still, it remained in nearly complete oblivion until 1841, when Laurent re-examined some of the chemical properties of this substance, and devised the following method of extracting it from certain coal-tar products. His process consists in submitting the light oils of tar to a fractional distillation, and then treating with a concentrated solution of potash the products which distil at a temperature between 320°F. and 392°F., separating the alkaline solution from the hydrocarbons which float on it, and then neutralising the alkali by an acid, which liberates the carbolic acid.

Such was Laurent's method of preparing carbolic or phenic acid, but pure carbolic acid was there in only small proportion; it was, in fact, a mixture composed chiefly of different liquids similar in properties and composition to carbolic acid; and although Laurent succeeded in obtaining solid carbolic acid, still the process devised by him was too expensive to answer on a manufacturing scale, and, besides, his method of operating was too complicated.

In the year 1857, I was called upon to investigate the matter, and find a cheap and practical process for obtaining carbolic acid in considerable quantity, this substance being required to produce a variety of colors that had just been discovered as obtainable from it, and the manufacture of which still continues.

From that date up to 1864, myself and partners (F. C. Calvert and Co.) continued to make improvements in the purification of commercial carbolic acid until we succeeded in obtaining large quantities of an acid similar in properties to that obtained by Laurent in his laboratory.

From this time I made many efforts to draw the attention of the medical profession to the really remarkable therapeutic properties of carbolic acid; but the tarry and sulphuretted odor which it still possessed was a serious obstacle to its application. I soon succeeded in overcoming this difficulty, and towards the end of the year 1864 our firm was in a position to deliver in considerable quantities carbolic acid deprived of sulphuretted compounds, and therefore fit for all medicinal uses. But I am glad to say that the series of improvements in the manufacture of pure carbolic acid, or phenic alcohol, did not stop there; for towards the end of last year I discovered a process which now enables me to present a product completely deprived of all disagreeable odor and tarry flavor and in fact as pure, though extracted from tar, as if it had been produced artificially by the help of the reactions recently discovered by Messrs. Wurtz and Kékulé, based upon the direct transformation of benzine into carbolic acid, or by the well-known changes by which it may be obtained from salicylic acid or nitro benzoic.

This new phenic or carbolic acid, which crystallises in white prismatic crystals, which are usually sold in a white, hard, fused mass, is distinguished from Laurent's in being soluble in 20 parts of water, whereas the latter requires 33. It is fusible at 106°F. instead of 93°F., and boils at 359° instead of 367°F.; but it gives, like Laurent's the blue color described by M. Berthelot, when mixed with ammonia; and to the solution is added a small quantity of a hypochlorite; the same effect is also produced when you expose to the vapors of hydrochloric acid a chip of deal soaked in this pure carbolic acid.

This acid is so pure, and so free from any objectionable flavor, that it should always be used as a therapeutic agent for all internal and dental purposes.

The second quality of carbolic acid which is manufactured, and which is identical in properties to that first described by Laurent—that is to say, a white solid substance, having a fusing point of 93°F., as above stated—can be used with advantage for all external applications, either medical or surgical, as its peculiar tarry taste is of no importance for such applications.

The third quality of carbolic acid which is now manufactured, and which will now be used extensively throughout her Majesty's fleet, presents itself in white detached crystals, which have a fusing point of about 81°F. This quality, when dissolved in from 50 to 100 parts of water, gives a perfectly colorless solution, which can be used with great advantage for antiseptic and disinfecting purposes in private dwellings, hospital wards, &c.

Lastly, there is also a quality found in the trade which is a nearly colorless fluid, and is a mixture of cresylic acid with carbolic acid. This product, when diluted with 100 parts of water, or more according to the required application, can be used with great advantage as an antiseptic and disinfectant for all out-door purposes, such as cesspools, waterclosets, drains, &c.; and as this quality has been extensively used to prevent the spread of rinderpest during the cattle plague, and also the spread of cholera in Liverpool, London, and other large towns, its demand at times has been very extensive, and therefore great temptations have been held out to unscrupulous manufacturers of the article to offer to the public a fictitious mixture. To enable purchasers to protect themselves from fraud, the following test is supplied on the authority of Mr. W. Crookes, F.R.S.:—

"Commercial carbolic acid is soluble in from 25 to 70 parts, or in twice its bulk, of a solution of caustic soda; while oil of tar is nearly insoluble.

"To apply these tests—

"1. Put a teaspoonful of the carbolic acid in a bottle; pour on it a half a pint of warm water; shake the bottle at intervals for half an hour, when the amount of oily residue will show the impurity.

"2. Dissolve one part of caustic soda in ten parts of warm water, and shake it up with five parts of the carbolic acid.

"As before, the residue will indicate the amount of impurity. These tests are not given as having any pretension to scientific accuracy, but as affording persons who are desirous of using carbolic acid a rough and ready means of seeing whether or not they possess the right article."

P.S.—I deem it my duty to call the attention of the medical profession to the fact that drying oils, like linseed oil, have the property of absorbing, with great rapidity, oxygen, and may thereby be the means of conveying oxygen to wounds, and thus produce irritation, if not inflammation. We therefore advise the employment of sweet olive oil only, or still better with glycerine.

## RED ERUPTION ON THE SKIN AFTER SURGICAL AND OTHER INJURIES.

By Henry Lee, F.R.C.S.,

**Surgeon to St. George's Hospital.**

Secondary Eruptions on the skin after surgical injuries and operations assume different forms. They generally are of a dark livid color. Blotches, assuming a livid or dusky-red appearance, will present themselves in different parts, and terminate in thick exfoliations of the cuticle, or in small sloughs of the skin. In some instances the superficial portions of the skin are destroyed, and the parts beneath appear comparatively unaffected; small circumscribed portions of the outer layer of the skin will exfoliate, and the subjacent parts will heal, without suppuration, by a process similar to that of scabbing. At other times the affection of the skin will terminate in small deposits of matter on its surface or in its structure. These pustules will then resemble those of small-pox. In other rare cases, again, the eruption will present a red color, quite distinct in appearance from the more common livid or purple spots first mentioned.

The first of the following cases, an abstract of which only is given, was communicated to me by Dr. Marston, R.A.

Case 1.—Sergeant W——, aged thirty-three, died on the 12th of February, 1867, having been subject for many weeks to great irritation of the stomach and intestines, accompanied by jaundice and loose dark-colored stools.

On the front of the chest and extremities there were numerous red, ineffaceable, petechial spots. On the back these spots were of a dark-livid hue. The skin of the neck presented a diffused redness, closely resembling scarlatinal rash.—Abdomen: The cæcum, about the situation of its appendix, and the right extremity of the omentum, were found to be closely adherent to the abdominal parietes. The adherent portions were of a very dark color. On opening the intestine at this part, it was found to be ulcerated and thickened; and the appendix was traced with difficulty, from its being embedded in a mass of tissue in a semi-gangrenous condition. A small clot of half-putrid blood, with some decomposing and highly-fetid fæces, were discovered on slitting up what appeared to be the vermiform appendage. Upon opening the superior mesenteric vein, it was found to contain some blood-clots. In some places these clots were so intimately adherent to the coats of the vein, and had been so hollowed out into a tunneled form by the blood circulating through their interior, that the adhering fibrin looked like the lining membrane; but it was easily peeled off, and the epithelial coat below was found to be unaltered. As the epithelium presented the usual microscopical appearances, it was evident that the vein itself was not the cause of the coagula. The fibrin was a deposit from the blood in the part, and not the product from a diseased lining membrane. In some places where the tunneling was less complete, portions of decomposing blood-clot still remained, with a fluid exactly resembling pus. The liver, which was large and discolored, was next examined, and found to be full of small abscesses, from the size of a millet-seed to that of a walnut. These metastatic abscesses, which must have been some hundreds in number, were in most intimate connexion with the various branches of the portal veins, spreading out from them like leaves from the twigs of a tree. The portal veins were laid open, and the main divisions to the right and left lobes contained decomposing clots, with a quantity of pus, or a fluid like it to all appearance. The blood in the smaller branches was in a similar state: and here and there one of these small vessels appeared as a long white streak, lying parallel to the section. The lobules, at the least affected parts, were surrounded by a dark ring of congestion, which contrasted with the white interior of the lobule. These abscesses had no limitary membrane, but were, in fact, composed of the disintegrated elements of the necrosed hepatic tissue. No abscesses existed in the lungs or other organs, except in a few mesenteric glands. The liver had apparently acted as an effective filter in preventing the passage of the decomposed elements into the general circulation.

Case 2.—A gentleman was operated upon for fistula on the 16th February, 1863. Eight days afterwards numerous bright-red spots appeared on the trunk, legs, and arms. These increased the next day, and became confluent. The eruption then resembled that of scarlet fever; the subsequent history, however, left no doubt upon my mind that the case was one of simple blood-poisoning.

Case 3.—This case I attended several years ago with Sir B. Brodie. A secondary abscess formed in the knee-joint, and some pustules appeared in the neighborhood. A fortnight before death a number of small bright-red spots made their appearance in different parts of the thigh and upper part of the leg. Some of these were three or four lines in diameter, while others were so small as not to be seen without attention. They appeared in accurately defined spots, of a brighter color than the mucous membrane of the lips, and continued unchanged in appearance till death.

A case lately occurred in St. George's Hospital, in which, after osteo-myelitis succeeding amputation, patches of a bright-red color appeared on the knuckles of the right hand and on the right side of the chest and abdomen; but as these were not so accurately circumscribed as in the other three cases above mentioned, the details are not here given.

In the first and second of the above cases, the absorption of vitiated matter in all probability took place through the portal veins. The blood had, therefore, to pass through the liver before entering the general circulation.

It has been shown by Case 1, that the more evident pathological changes may be confined to the first system of vessels through which the blood passes. After it had been, as it were, strained through the capillaries of the liver, it produced none of the usual effects of blood-poisoning in other parts of the system. The red spots on the skin, however, showed that the blood in the general circulation was still in some measure affected. In two out of the three cases noted, the blood had in this way to pass through the liver before entering the general circulation, and the peculiar color of the eruption in those cases may not unreasonably be associated with this fact. Whether "the rose-cclored spots" in typhoid fever are produced in a similar manner, may be a subject not unworthy the attention of physicians.

Savile-row, W., Dec. 1867.

### ON A CASE

### OF

## ABSCESS BENEATH THE ROOT OF THE TONGUE.

By Robert Cuffe, Esq., M.R.C.S.

On March 16th, 1867, I was called to A. B——, a strong, well-built, and healthy man, about thirty-five years of age, a livery-stable keeper, of not very temperate habits, and found him unable to swallow, the tongue being greatly swollen, and partially protruding from the mouth. A slight swelling was perceptible behind the angle of the left jaw. He breathed quietly through the nostrils, and his speech was imperfect. These symptoms came on suddenly, the patient being in his usual health the day previously. I called in my partner, Dr. Spooner, who continued to attend the case with me. We ordered a purgative mixture, a linseed poultice to the throat, and the vapor of warm water to be constantly inhaled.

March 17th.—He has passed a restless night, the pain and discomfort of breathing having prevented sleep. The swelling of the tongue had not diminished: it was dry, and of dark color, the tip being turned upwards and backwards. It was with the greatest difficulty that he could swallow a particle of fluid. Inhalation and warm fomentations were continued. He was ordered a mixture of tincture of muriate of iron with chlorate of potash, and an enema of beef-tea and gruel.

18th.—Ten A.M.: We found the swelling still undiminished. The patient was sitting up in bed, with an anxious countenance, but breathing quietly. The mouth could not be closed, for the tongue, which, with the parts beneath it, was inflamed, and more swollen than the day previous, with a profuse discharge of saliva, was pressed against the hard palate, and overfilled the cavity of the mouth. The patient was complaining of a deep-seated aching in the tongue. Speech was unintelligible, and his discomfort was extreme. He was obliged to explain himself by writing on a slate. Although there was a history of pain having been felt about the left side of the lower jaw, no tenderness or fulness of any kind existed below the inferior maxilla, with the exception, indeed, of a sense of deep-seated tenderness, not severe, on pressing firmly against the thyroid cartilage. On examining the fauces, which were with difficulty reached with the fingers, they were felt to be free from swelling, and the soft palate was in a natural condition.—Half-past nine P.M.: I consulted Mr. Callender, of St. Bartholomew's Hospital, who made a most careful and searching examination. At the left upper and back part of the tongue a considerable elevation of its tissue led to the suspicion of matter being present there, and a few drops were, we believe, let out by puncture with a curved bistoury, giving the patient temporary relief, probably from the attendant bleeding.

19th.—He had passed a restless night, was depressed, anxious, and complaining still more of deep-seated pain in the tongue. He now for several days had been quite unable to take food or drink, and at times breathed heavily, with difficulty, and with a sense of impending suffocation.

On further examination of the swollen parts, there was scarcely any evidence to indicate a centre for the disease; but observing that the entire tongue was lifted up, as if some pressure existed from below, and taking into consideration the brief duration of the illness, it was thought desirable to explore the parts beneath the tongue, in the hope of finding amongst them some collection of matter. Mr. Callender accordingly divided the mucous membrane between the tongue and the left bicuspid tooth, and then pushed a stout director inwards, backwards, and downwards, for about one inch; but without any result. He then reintroduced the director, and, with the exertion of some force, pushed it back towards the root of the tongue for a distance of rather more than two inches, when a quantity of pus flowed quickly up the groove, and escaped externally. The patient felt at once relieved, and the next morning could swallow pretty well. A probe had to be introduced occasionally to ensure the ready outlet of the matter. In a few days the patient was comparatively convalescent, and able to resume his usual avocations.

Mr. Callender observed that it was most unusual to have an abscess form beneath the base of the tongue and in front of the epiglottis, as must have been the case in this instance, as proved by the distance of the pus from the surface of the floor of the mouth, and by the direction of the probe downwards and backwards. There was no pointing or tendency to point; and the absence of all local symptoms from the region below the jaw was an important feature in the case, showing that the matter was walled in below and laterally by the mylohyoid and hyoglossus muscles of either side.

It is obvious that the plan employed in searching for and opening the abscess was the only one that could have been adopted. It would not have done to have cut deeply from the inside of the mouth, and there was no symptom to guide to and to justify an incision below the jaw, through the parts connecting it and the tongue with the hyoid bone.

Guildford-street, Russell-square, 1867.

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## GUY'S HOSPITAL.

### CASES OF WOUNDS INTO JOINTS.

(Under the care of Mr. JOHN BIRKETT.)

PENETRATING wounds of the large joints always excite alarm in the mind of the surgeon. Even incised wounds, most carefully made, and with every precaution adopted to prevent inflammation, as for the removal of loose cartilages from joints, have been attended with disastrous consequences. Wounds inflicted by rough tools, and complicated with injury to the surrounding parts, must always be attended with corresponding risk to the integrity of the injured member and the life of the sufferer. Taken in time, however, and carefully treated with the appliances of modern surgery, the danger accompanying these serious injuries may at least be averted, and, as the following cases illustrate, the usefulness of the injured joint need not necessarily be compromised. The principles upon which the treatment of the injuries was carried out were as follows: the immediate closure of the wound, the adoption of perfect repose of the body and immobility of the injured member, the local application of ice, and a moderate but nourishing diet.

CASE 1. *Incised wound into the knee-joint.*—The report taken by Mr. E. N. Edwards, the dresser of the case, is as follows:—On Feb. 8th, 1867, a healthy carpenter, twenty-five years old, fell from a height of several feet whilst carrying a basket of tools, with the sharp edge of one of which a wound was inflicted over the outer side of the left knee-joint. It was partly over the patella, and extended obliquely backwards and downwards about an inch and a half as the limb reposed in the extended posture. The edges of the wound were carefully kept in contact by adhesive plaster and a compress of lint, but synovial fluid escaped freely from the wound the day after the accident. The surface of the whole joint was warmer than that of the opposite side, and the capsular ligament was distended with fluid. The limb was fixed on a straight back splint, ice applied over the joint, and a moderate but nourishing diet allowed.

The progress of this case was satisfactory; for neither local inflammation nor constitutional disturbance to excite apprehension arose, and the upper half of the wound healed in a few days. Synovial fluid continued to ooze from its posterior termination, and retarded the healing process. Ice was continued for twelve days, when the effusion into the joint had subsided. The wound was not covered, and it seemed to heal more quickly under this condition, an incrustation forming over it, beneath which cicatrisation advanced.

The man left the hospital forty-eight days after the infliction of the injury quite well.

CASE 2. *Lacerated wound of leg communicating with the knee-joint.*—The following case is reported by the dresser, Mr. J. A. Sharp:—A healthy, hard-working man, twenty-one years old, was admitted on August 23rd last into Accident ward, in consequence of an injury received about an hour before, and produced by the kick of a horse. The calkin of the horse-shoe had struck the man just below the left knee-joint, the articulation at the moment being flexed. A wound was inflicted in front of the leg, over which a surgeon quickly placed a pad of lint and plaster. As blood flowed from beneath this dressing, it was removed, and a contused lacerated wound of the integuments was seen. It was somewhat quadrilateral, oblique in direction, and about three-quarters of an inch in diameter, and situate two inches and a half below the anterior edge of the upper articular surface of the tibia, a little below the tubercle of the tibia. The soft parts were cut through to the surface of the tibia. The knee-joint was swollen, and when pressure was made over the patella, the blood flowed more freely from the wound. The last observation led to a very careful examination of the injury by Mr. Birkett, who found that there was not only blood within the synovial capsule, but also air; for upon continuing the compression, bubbles of air came out of the wound with the blood, and upon percussing over the swollen joint, the peculiar dull sound of a circumscribed collection of air beneath the integuments was recognisable by all the bystanders. It was not possible to expel all the air; the size of the distended capsule was much reduced by expressing the blood from within it. The diagnosis was then clearly established, that from the integumental wound a free passage extended through the synovial membrane into the knee-joint, that blood flowed into its cavity, and that air had also gained admission therein. The limb was placed in an extended posture, and kept so by means of sand-pillows. Pressure was made over the joint to expel as much of the blood and air as possible; a compress of lint was strapped over the track of the injury *between* the wound and the head of the tibia, and water-dressing was applied on the wound itself. In spite, however, of this local treatment, the joint soon became again swollen, probably from effused blood. The character of the bleeding was venous. Strict repose was enjoined, ice was kept constantly in contact with the whole anterior and lateral surfaces of the joint, and a moderate diet only was permitted.

There was not an untoward symptom in the progress of this man's recovery. The wound healed in about a fortnight; the joint continued swollen, but was never painful; and he was very unwilling to follow the strict rules imposed as regards the absolute repose of the member. Ice was employed for three weeks, it being continued after the external wound was healed. For five weeks the man was kept in bed, and appliances used to maintain extension of the joint; and when he left the hospital, forty-three days after the infliction of the injury, the movements of the joint caused no pain.

The patient called at the hospital on Dec. 2nd, and stated that he did not experience the slightest inconvenience from the injury.

CASE 3. *Wound of elbow-joint complicated with fracture of the olecranon.*—This patient was admitted on the 4th April last, and from the report of the case by Mr. C. H. W. Parkinson it appears that the man, twenty years old, was struck at by a fellow-workman with an ordinary carpenter's hand-saw, the back edge of which was very thin and sharp. With this weapon a wound was inflicted transversely across the posterior region of the left elbow-joint. The integuments were divided for about two inches in length, rather obliquely; and three-quarters of an inch of the olecranon ulnæ was cut off, which retained its ligamentous and tendinous attachments, and allowed the cavity of the joint to be seen during its flexion. Three sutures were employed to adjust the wound of the skin, and the arm was placed on a straight splint, well padded at the elbow. Moist lint was laid over the wound. After a day or two the wound became inflamed, and the man complained of pain. Ice was applied over the joint which reduced the inflammation, although the wound assumed a sloughing aspect. The sutures were removed, and a lotion with permanganate of potash was applied over the wound. An angular screw splint was substituted in place of the straight one, but this, even, caused pain and swelling of the arm. In a few days it was removed, and the arm steadied by pillows. Ice was used for thirty days. After forty-six days the wound was quite healed, but still the joint was kept perfectly at rest, somewhat flexed. He left the hospital in sixty-nine days after receiving the injury, the member saved, but the movements of the joint impaired.

## WESTMINSTER HOSPITAL.

### INJURY TO THE HEAD FROM A FALL; RECOVERY.

(Under the care of Mr. HOLTHOUSE.)

IN the "Mirror" for last month we published notes of a case of injury to the head, under Mr. Holthouse's care, in which an ataxy of articulation resulted, and continued after the patient's general health was restored. In the present instance it will be observed that slight symptoms of aphasia were apparent, but gradually disappeared, the patient entirely recovering from the injury to his head. There are points in the case which it is interesting to note. In the first place, it seems pretty certain that the man fell from exhaustion, and perhaps giddiness—not from apoplexy, or there would have been more or less persistent paralysis for a length of time. As regards the diagnosis of the lesion and its locality, it would seem possible that there was a fracture extending from the right parietal eminence—the point struck—to the petrous bone of the same side, giving rise to the hæmorrhage from the right ear. From the occurrence of aphasia, it is probable that the left anterior cerebral hemisphere was damaged by *contre-coup*. There may have been bruising, slight laceration, and hæmorrhage of its posterior part, near to the Sylvian fissure. It is to be noted that though the patient ate and drank well, and articulated to a certain extent, he could not protrude his tongue. This inability, which is rare in simple hemiplegia, is not uncommon in aphasia. Other interesting points in the case are, the patient's mental retrocession to childhood life, and the calls of this man of fifty-five for his mother. We saw a case of aphasia from softening the other day at the National Hospital for Epilepsy and Paralysis, where the patient, an old man, when asked by Dr. Buzzard where he lived, gave as his address a residence which he had quitted twenty-five years ago.

Alex. D——, aged fifty-five, was admitted into the Westminster Hospital on Jan. 4th, 1867, in a semi-conscious state, in consequence of a severe blow on the right side of the head eighteen hours previously. According to his wife's account, he had suffered from chronic cough and dyspnœa for some years, and on ascending the stone steps to his rooms he was observed to be much out of breath on reaching the top (only eight steps), and then to stagger and fall down heavily, striking the right side and back part of the head over the right parietal eminence. He lay where he fell, and, on being picked up, blood was flowing from a scalp wound about three quarters of an inch in length, in the situation above described, and also from the right ear, and it continued to flow from the latter for twelve hours. For the first hour after the accident he was rational, but after that he began to talk incoherently, and made no rational reply to questions, but raved the whole of the night and was much excited. Half an hour after the accident he had a very copious evacuation of the bowels, and about midnight was slightly sick, vomiting chiefly a little frothy mucus. On removing him from his room to come to the hospital, his nose burst out bleeding, and continued to bleed till his arrival there, when it ceased.

When seen an hour after admission, he was lying on his left side, with the knees drawn up, and breathing quietly; skin tolerably warm; pulse small and feeble. There was no bleeding from the scalp wound or from the ear. When questioned, he answered, though not relevantly; but when asked if he had pain in the head, said "Yes." There was no unnatural heat of the forehead. Ordered low diet.

Jan. 5th.—No disposition to coma, but rather to restlessness and incoherent talking. When asked a question, always responds, but the response is no answer, but not unfrequently "Yes," or some irrelevant ejaculation.

6th.—Lying with his eyes open, and looking intelligent; but talking a good deal to himself, chiefly about getting up. He frequently calls out "Mother," though his mother has been dead many years, and he is not in the habit of addressing his wife thus. When spoken to, he still answers, or rather articulates something quite irrelevant to the question. When told to put out his tongue, he opens his mouth, but will not, or probably cannot, protrude it. His countenance does not express suffering or intra-cranial mischief. His skin is moist and warm, and he takes a moderate amount of nourishment. His pupils are in a medium state, and act under variations of light. Pulse feeble, 78. He passes urine voluntarily, and his bowels have not acted since his admission.

7th.—Passed a restless night, moaning, and getting up and down in his bed. He lies indifferently on either side, but seems to prefer being on his back with the trunk slightly raised and his head leaning against the wall. Though he still answers

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The progress of this case was satisfactory; for neither local inflammation nor constitutional disturbance to excite apprehension arose, and the upper half of the wound healed in a few days. Synovial fluid continued to ooze from its posterior termination, and retarded the healing process. Ice was continued for twelve days, when the effusion into the joint had subsided. The wound was not covered, and it seemed to heal more quickly under this condition, an incrustation forming over it, beneath which cicatrisation advanced.

The man left the hospital forty-eight days after the infliction of the injury quite well.

CASE 2. *Lacerated wound of leg communicating with the knee-joint.*—The following case is reported by the dresser, Mr. J. A. Sharp:—A healthy, hard-working man, twenty-one years old, was admitted on August 23rd last into Accident ward, in consequence of an injury received about an hour before, and produced by the kick of a horse. The calkin of the horse-shoe had struck the man just below the left knee-joint, the articulation at the moment being flexed. A wound was inflicted in front of the leg, over which a surgeon quickly placed a pad of lint and plaster. As blood flowed from beneath this dressing, it was removed, and a contused lacerated wound of the integuments was seen. It was somewhat quadrilateral, oblique in direction, and about three-quarters of an inch in diameter, and situate two inches and a half below the anterior edge of the upper articular surface of the tibia, a little below the tubercle of the tibia. The soft parts were cut through to the surface of the tibia. The knee-joint was swollen, and when pressure was made over the patella, the blood flowed more freely from the wound. The last observation led to a very careful examination of the injury by Mr. Birkett, who found that there was not only blood within the synovial capsule, but also air; for upon continuing the compression, bubbles of air came out of the wound with the blood, and upon percussing over the swollen joint, the peculiar dull sound of a circumscribed collection of air beneath the integuments was recognisable by all the bystanders. It was not possible to expel all the air; the size of the distended capsule was much reduced by expressing the blood from within it. The diagnosis was then clearly established, that from the integumental wound a free passage extended through the synovial membrane into the knee-joint, that blood flowed into its cavity, and that air had also gained admission therein. The limb was placed in an extended posture, and kept so by means of sand-pillows. Pressure was made over the joint to expel as much of the blood and air as possible; a compress of lint was strapped over the track of the injury *between* the wound and the head of the tibia, and water-dressing was applied on the wound itself. In spite, however, of this local treatment, the joint soon became again swollen, probably from effused blood. The character of the bleeding was venous. Strict repose was enjoined, ice was kept constantly in contact with the whole anterior and lateral surfaces of the joint, and a moderate diet only was permitted.

There was not an untoward symptom in the progress of this man's recovery. The wound healed in about a fortnight; the joint continued swollen, but was never painful; and he was very unwilling to follow the strict rules imposed as regards the absolute repose of the member. Ice was employed for three weeks, it being continued after the external wound was healed. For five weeks the man was kept in bed, and appliances used to maintain extension of the joint; and when he left the hospital, forty-three days after the infliction of the injury, the movements of the joint caused no pain.

The patient called at the hospital on Dec. 2nd, and stated that he did not experience the slightest inconvenience from the injury.

Case 3. *Wound of elbow-joint complicated with fracture of the olecranon.*—This patient was admitted on the 4th April last, and from the report of the case by Mr. C. H. W. Parkinson it appears that the man, twenty years old, was struck at by a fellow-workman with an ordinary carpenter's hand-saw, the back edge of which was very thin and sharp. With this weapon a wound was inflicted transversely across the posterior region of the left elbow-joint. The integuments were divided for about two inches in length, rather obliquely; and three-quarters of an inch of the olecranon ulnæ was cut off, which retained its ligamentous and tendinous attachments, and allowed the cavity of the joint to be seen during its flexion. Three sutures were employed to adjust the wound of the skin, and the arm was placed on a straight splint, well padded at the elbow. Moist lint was laid over the wound. After a day or two the wound became inflamed, and the man complained of pain. Ice was applied over the joint which reduced the inflammation, although the wound assumed a sloughing aspect. The sutures were removed, and a lotion with permanganate of potash was applied over the wound. An angular screw splint was substituted in place of the straight one, but this, even, caused pain and swelling of the arm. In a few days it was removed, and the arm steadied by pillows. Ice was used for thirty days. After forty-six days the wound was quite healed, but still the joint was kept perfectly at rest, somewhat flexed. He left the hospital in sixty-nine days after receiving the injury, the member saved, but the movements of the joint impaired.

## WESTMINSTER HOSPITAL.

### INJURY TO THE HEAD FROM A FALL; RECOVERY.

(Under the care of Mr. Holthouse.)

In the "Mirror" for last month we published notes of a case of injury to the head, under Mr. Holthouse's care, in which an ataxy of articulation resulted, and continued after the patient's general health was restored. In the present instance it will be observed that slight symptoms of aphasia were apparent, but gradually disappeared, the patient entirely recovering from the injury to his head. There are points in the case which it is interesting to note. In the first place, it seems pretty certain that the man fell from exhaustion, and perhaps giddiness—not from apoplexy, or there would have been more or less persistent paralysis for a length of time. As regards the diagnosis of the lesion and its locality, it would seem possible that there was a fracture extending from the right parietal eminence—the point struck—to the petrous bone of the same side, giving rise to the hæmorrhage from the right ear. From the occurrence of aphasia, it is probable that the left anterior cerebral hemisphere was damaged by *contre-coup.* There may have been bruising, slight laceration, and hæmorrhage of its posterior part, near to the Sylvian fissure. It is to be noted that though the patient ate and drank well, and articulated to a certain extent, he could not protrude his tongue. This inability, which is rare in simple hemiplegia, is not uncommon in aphasia. Other interesting points in the case are, the patient's mental retrocession to childhood life, and the calls of this man of fifty-five for his mother. We saw a case of aphasia from softening the other day at the National Hospital for Epilepsy and Paralysis, where the patient, an old man, when asked by Dr. Buzzard where he lived, gave as his address a residence which he had quitted twenty-five years ago.

Alex. D——, aged fifty-five, was admitted into the Westminster Hospital on Jan. 4th, 1867, in a semi-conscious state, in consequence of a severe blow on the right side of the head eighteen hours previously. According to his wife's account, he had suffered from chronic cough and dyspnœa for some years, and on ascending the stone steps to his rooms he was observed to be much out of breath on reaching the top (only eight steps), and then to stagger and fall down heavily, striking the right side and back part of the head over the right parietal eminence. He lay where he fell, and, on being picked up, blood was flowing from a scalp wound about three quarters of an inch in length, in the situation above described, and also from the right ear, and it continued to flow from the latter for twelve hours. For the first hour after the accident he was rational, but after that he began to talk incoherently, and made no rational reply to questions, but raved the whole of the night and was much excited. Half an hour after the accident he had a very copious evacuation of the bowels, and about midnight was slightly sick, vomiting chiefly a little frothy mucus. On removing him from his room to come to the hospital, his nose burst out bleeding, and continued to bleed till his arrival there, when it ceased.

When seen an hour after admission, he was lying on his left side, with the knees drawn up, and breathing quietly; skin tolerably warm; pulse small and feeble. There was no bleeding from the scalp wound or from the ear. When questioned, he answered, though not relevantly; but when asked if he had pain in the head, said "Yes." There was no unnatural heat of the forehead. Ordered low diet.

Jan. 5th.—No disposition to coma, but rather to restlessness and incoherent talking. When asked a question, always responds, but the response is no answer, but not unfrequently "Yes," or some irrelevant ejaculation.

6th.—Lying with his eyes open, and looking intelligent; but talking a good deal to himself, chiefly about getting up. He frequently calls out "Mother," though his mother has been dead many years, and he is not in the habit of addressing his wife thus. When spoken to, he still answers, or rather articulates something quite irrelevant to the question. When told to put out his tongue, he opens his mouth, but will not, or probably cannot, protrude it. His countenance does not express suffering or intra-cranial mischief. His skin is moist and warm, and he takes a moderate amount of nourishment. His pupils are in a medium state, and act under variations of light. Pulse feeble, 78. He passes urine voluntarily, and his bowels have not acted since his admission.

7th.—Passed a restless night, moaning, and getting up and down in his bed. He lies indifferently on either side, but seems to prefer being on his back with the trunk slightly raised and his head leaning against the wall. Though he still answers only "yes," or "oh dear!" to nearly every question, and cannot put out his tongue, he is evidently conscious of what is said to him, and explains by his hand that he has pain on the top of his head. His bowels acted well yesterday. He makes his wants known. Pulse 78, soft and feeble. A blister to be applied at back of neck.

8th.—The blister rose well. He passed a better night, and this morning is decidedly improved; the pain in the head is relieved, and he answers questions rationally for the first time. Thus, on asking him if his head was better, he said "Yes, better." He is still, however, unable to put out his tongue, though he opens his mouth immediately when told to do so.

9th.—Passed a bad night; very restless, and suffering much from dyspnœa; but the improvement in the mental condition continues; he is free from pain in the head, and says he shall get better. Pulse stronger and fuller, 78. Still unable to put out his tongue; deglutition perfect. Scalp wound nearly healed. Ordered compound spirits of sulphuric ether, thirty minims every four hours, if necessary.

10th.—Better, but still does not answer readily unless the word is suggested to him. When asked "How are you?" he mumbled something indistinctly; but when asked "Are you better?" he answered "Better," and then voluntarily followed up the response by saying "I've more reason." Still he does not always appear to comprehend what is said. On telling him, for instance, to put out his tongue, he made no effort to do so, though it was repeated three times; but if the questioner put out his own tongue, the patient immediately opened his mouth and tried to do the same, though without success. He had a very good night.

12th.—Decidedly better. When asked "How are you?" he replied "Very queer;" but is now able to put out his tongue. Pulse 84, with power. His cough is now the principal ailment.

23rd.—Convalescent, and about; there having been no relapse in the head symptoms since last note. He suffers only from the chronic chest disease.

29th.—Discharged.

## ST. BARTHOLOMEW'S HOSPITAL.

### THREE CASES OF NECROSIS.—A CASE OF FIBROUS TUMOUR ON THE TONGUE.

(Under the care of Mr. Paget.)

Surgical interference on account of death of bone is probably the most common of all operations. In some respects it is the most interesting. There is no condition in which surgical art may be more happily exhibited. Well-timed exploration may save months, nay, sometimes years of suffering; and if the question be asked as to the proper time for interference, there are probably few surgeons who would not agree that it is better to be too early than too late in our efforts to remove sequestra. Delay but too often surrounds the dead piece of bone with a dense growth of new osseous tissue, which renders extraction very difficult.

We saw on Saturday last at this hospital three patients placed upon the operating-table in succession, each of whom had portions of dead bone which Mr. Paget wished to remove. The circumstances of each case differed.

The first was an unhealthy-looking lad, of apparently fourteen or fifteen years of age. The lower part of the right leg and also his ankle were swollen and boggy, whilst over the outer malleolus were apertures through which pus was discharged. It seemed that five weeks previously this boy had broken his fibula just above the outer malleolus. The fracture was a simple one, and had been properly put up. The boy, however, instead of keeping quiet, had walked upon the broken limb, with the result of setting up some inflammatory action in the neighborhood of the fracture. Suppuration had followed, abscesses had burst, hæmorrhage had taken place, and the boy's health had suffered considerably. Mr. Paget introduced a grooved director into a sinus, and made a cut upwards for five or six inches along the course of the fibula. This bone, on being exposed was found dead in patches, varying in extent, the intervening portions presenting signs of ostitis. The external malleolus was loose, denuded of cartilage, and dead. When this was removed, pus was found evidently exuding from the ankle-joint. Mr. Paget then made a vertical cut over the inner malleolus, where there were evident signs of matter. When the joint was opened, a large quantity of creamy pus poured out. These signs of disorganisation made it only too evident that amputation was the sole remaining chance for the lad. It was necessary, however, that this should be for the moment deferred, as neither the patient nor his friends had been prepared for such a result. The wound was therefore filled with lint steeped in perchloride of iron, and the boy removed. There had evidently been in this case inflammation of bone, which had extended to the ankle-joint.

The next patient was a man past middle age, who seemed to have come in for more than his share of the common evils of our lot. He had lost the left leg and the right eye. He stated that Mr. Paget had removed the former five or six years ago for mischief which arose out of a scratch. Nothing more definite than this could be ascertained. He was now suffering from necrosis of the lower jaw. His chin was enlarged; the skin thickened, and presenting two or three sinuses which wept a little matter. Mr. Paget, introducing a director through these, could feel bare bone, and, as it seemed probable that this was loose, he determined to try and remove it. He first extracted one or two teeth, and endeavored to get at the bone through the mouth; but this was not practicable. He then opened up a sinus under the chin, and getting hold of the dead bone with the sequestrum forceps, he tried to dislodge it; but by no effort could he accomplish this. It was a good illustration, Mr. Paget remarked, of the difficulty—nay, impossibility sometimes—of determining beforehand whether bone is loose or not. There is no rule in such cases. Separation may take place very rapidly, or be long deferred. On the whole, he thought it was the more rapid when the inflammation had been most acute. Such a case as this, he said, had not unfrequently brought dentists into most unmerited disgrace. Inflammation of bone and consequent necrosis had followed the removal of teeth, and had been most erroneously attributed to this operation. In all probability the loosening and decay of teeth which had necessitated their removal had themselves resulted from the inflammation of bone, instead of having caused it.

A young man was now placed upon the table whose right leg had been amputated in its upper third by Mr. Paget in February last a portion of tibia in the stump had died; and, two or three weeks since, Mr. Paget had removed some of this dead bone, leaving, however, another part which was not yet loose. On the present occasion, having cut down upon the necrosed part, he succeeded in removing two small sequestra, which he hoped were all that had to come away. The probability is that the man's stump will heal now that the source of irritation is no longer present.

The preceding patients had all been kept under the influence of chloroform by Mr. Langton. To the next one none was administered. She was a girl, who on putting out her tongue showed upon its dorsum, near the base and to the right of the mesial line, a tumour the size of a large pea or small bean. This was hard to the touch. It was variously diagnosed by some of the staff, who examined it with their fingers, as calcified sebaceous tumour, shrivelled hydatid, or fibrous tumour. The last opinion proved to be correct. Mr. Paget seized it with forceps, and having divided it into halves with a bistoury, it was easily turned out. It was white, dense, and fibrous in structure. Mr. Paget remarked that he had once before met with a similar case.

### A CASE OF IDIOPATHIC TETANUS.

(Under the care of Mr. HOLMES COOTE.

The following case, for the notes of which we are indebted to Mr. Horsfall, house-surgeon, would seem to be an example of the condition known as idiopathic tetanus. It is the fourth of its kind which has come under Mr. Coote's observation.

William C——, aged fifty-four, a laborer, a very muscular man, came to the surgery on Nov. 11th complaining of headache and stiffness of the jaws. Trismus and risus sardonicus were well marked. He had felt the stiffness two days before. Had no headache until this morning.

On admission, he could move his jaw very slightly. As he went from the surgery to the ward he fell, as he said, from weakness. He recollected no injury, recent or otherwise, and has had no pain in abdomen or elsewhere until this morning. Has always been a healthy and temperate man. He was admitted at twelve noon. Bowels open yesterday, and not this morning.—Half-past one P.M.: Cannot move his jaw at all. Pulse 100, very strong and full; trismus more marked; muscles of abdomen very tense and hard; opisthotonos very slight, but persistent; respiration entirely thoracic.—Quarter past two P.M.: One minim of croton oil was administered.—Five P.M.: Bowels not open. Croton oil repeated. Pulse as before; tongue very red and moist, protruded with difficulty; opisthotonos more marked; perspiring freely.—Eight P.M.: Bowels open twice since five; perspiration very profuse; pulse 124, slightly irregular in force, and very full; shows the tip of his tongue with great difficulty; respiration thoracic, but not labored.—Quarter past ten P.M.: Pulse 110, not so full, more natural and regular; bowels open twice since eight P.M.

Nov. 12th.—Thirty-five minutes past twelve: Bowels open at half-past ten, slightly; pulse 108, as before. An ounce and a half compound senna draught administered as an enema; half a grain of morphia injected subcutaneously.—Twenty minutes past two A.M.: Bowels not open again; respiration thoracic and free; perspiration less; says he feels better; no alteration in other respects.—Four A.M.: Pulse 100, feeble; breathing stertorous and labored; has breathed so for the last fifteen minutes; opisthotonos increased and persistent; both arms completely flexed; hands clenched; surface of body where exposed, very cold; evidently moribund. He died about half-past four.

Throughout the progress of this case the spasmodic contraction was persistent and increasing. A careful examination of the surface of the body failed to discover any scratch or bruise. The teeth were not more carious than the average at his age.

Nothing whatever was discovered in the post-mortem examination that could be even hypothetically regarded as an irritating cause.

There has been quite a cluster, Mr. Horsfall tells us, of cases with tetanic symptoms in this hospital of late. Besides the above, there have been three of tetanus proper—two of which were of traumatic origin,—and two of poisoning by strychnia. One of these last, the result of a dose of "Battle's vermin-killer," was fatal; in the other, very alarming symptoms were produced by a very minute dose of liquor strychniæ. We shall probably, refer to these on another occasion.

## ROYAL FREE HOSPITAL.

### ENCEPHALOID CANCER OF UTERUS AND RIGHT OVARY: LATENCY OF SYMPTOMS; SPONTANEOUS PERFORATION, WITH HÆMORRHAGE INTO PERITONEAL CAVITY; DEATH.

(Under the care of Dr. RICKARDS.)

THERE are some interesting features in the following case, for the excellent notes of which we are indebted to Dr. A. Lloyd Owen, house-surgeon. Points worthy of remark are:—

1. The localisation of advanced medullary cancer of body and fundus of the womb, neither os nor vagina, nor any pelvic structures being involved.

2. The latency of the symptoms: the apparently rapid growth of tumour only recognised by patient three weeks before treatment; pain only complained of during last two months of life; absence of serous or sanguineous discharge till within twenty-four hours of death.

3. The mode of death: by rupture of fungoid mass into cavity of peritoneum; whereas progressive cachexia and anæmia, resulting from continued suffering and exhaustive discharges, more frequently, though more slowly, bring about the fatal issue.

A solid nodulated mass, occupying the greater part of lower half of abdomen, not necessarily connected with the womb as far as careful repeated vaginal examinations revealed, was thought to have been possibly cancer of omentum, until the characteristic uterine discharge cleared up the diagnosis. The passage of a uterine sound might perhaps have afforded some assistance in revealing the state of the interior of the womb, in ascertaining its diminished mobility, and in bringing away débris; but its passage into such a mass of disease might have hastened if not caused the fatal perforation, which nature soon employed to rid the woman of further suffering.

Mary H——, aged fifty-four, a charwoman, was admitted Nov. 7th, 1867, suffering from abdominal tumour. She was a widow; has had twelve children; parturitions protracted, but natural; no catamenia for twelve years; occasionally slight leucorrhœa. For the last six weeks she has suffered pain in the lower part of abdomen, and occasionally an uncomfortable feeling of distension, but the latter would subside after free movement of the bowels, which are sometimes unopened for a fortnight. No leucorrhœa of late, and no other kind of discharge at any time. Only three weeks ago noticed a tumour in the belly.

*Symptoms on admission.*—Rising out of the pelvis, extending upwards to the umbilicus, and laterally to the flanks, is seen and felt a solid tumour. It pushes the abdominal wall forward in front and to the right, where it dips down into the right iliac fossa: less prominent and perceptible on the left side. Irregular, hard, and solid in the main, it nevertheless gives here and there a doughy, quasi-fluctuating sensation to the fingers, as if containing loculi with fluid. The tumour is not sufficiently large to cause tension of the abdominal walls, which are flaccid and non-adherent to the subjacent mass. Skin of belly muddy-yellow, wrinkled and scaly. No ascites. Vaginal examination reveals nothing abnormal. The region around the os is soft and smooth; its lips are patent and slightly puckered, as is usual in the multiparous womb; but there is no infiltration, induration, excoriation, or erosion, and the vagina is similary intact. On withdrawing the finger it is perfectly free from discharge, even at the tip, which has been inserted between the lips of the os. Manipulation of the tumour and vaginal examination increase the pain in the abdomen, which is also exaggerated at night. No cancerous cachexia evident; skin of face of a brownish hue, and wrinkled. Emaciation not more than would result from insufficient food and exposure to privations. Urine passed freely; no albumen.

Nov. 19th.—Has been given a nourishing diet, with wine; occasional aperients to relieve constipation, and opiates to subdue abdominal pain, which has been so severe as to prevent sleep; in fact, pain and an obstinate state of the bowels were her only symptoms until yesterday afternoon, when suddenly she was seized with excruciating agony in the abdomen, and a profuse discharge of sanious fluid and medullary *débris* issued from the vagina. Symptoms of collapse, as in perforative peritonitis, ensued, and opiates with stimulants failed to avert death, which occurred in the course of twenty-four hours.

*Autopsy, twenty hours after, death.*—Body somewhat ill-nourished; scarcely any fat. Lungs healthy, with the exception of slight emphysema. Heart flabby; atheromatous streaks in aorta. Liver, stomach, spleen, pancreas, and kidneys healthy. On laying open abdomen, hæmorrhage was noticed on surface of intestines; omentum adherent to an irregular nodulated tumour, the size of an adult head, to the right side of which is inseparably united another mass as big as a cocoa-nut. The two, though so blended together, are at once recognised as the uterus and right ovary, both of them enormously enlarged, and transformed into medullary cancer. On attempting to break through the omental adhesions, a quantity of dark grumous blood issues from a slit on anterior surface of tumour, which slit, seen on first opening the cavity of abdomen, and before touching the parts, as a distinct rupture, has now become larger on attempting to clear the way, and bring the objects into view. Surface of tumour soft and pulpy; patches of opaque yellow color are visible through a vascular peritoneal covering. After excising the womb, ovaries, and genital organs *en masse*, an incision was made in the middle line of uterus from fundus to os. The whole of its interior consists of medullary cancer, rapidly disintegrating; in the centre soft, yellow, and semi-diffluent; but approaching the circumference it is somewhat firmer, and hæmatoid fungi and clots are here and there working their way towards the peritoneal lining, one having reached the surface and perforated the serous membrane, and two or three are now threatening. In portions of tumour, vessels, stratiform and arborescent, on a pinkish ground, are noticed. Uterine cavity obliterated. Medullary infiltration has involved the whole of cervix, down to internal surface of os; but anterior and posterior lips of os, as well as vagina, are perfectly free from ulceration or other abnormal condition. Right ovary on section presents precisely the same characters as uterus: the original structures gone, and only the external coverings distinguishable in either case. Left ovary of proper size, and healthy. Rectum and bladder uninvolved. Some sanious fluid and yellow *débris* in pelvic cavity. No secondary deposits anywhere. Lumbar glands unaffected.

Under the microscope were seen the characteristic encephaloid cells in abundance.

## GREAT NORTHERN HOSPITAL.

### MYELOID DISEASE OF THE UNDER JAW; REMOVAL.

(Under the care of Mr. Gay.)

Occupying a very similar position, but of entirely different anatomical character, the disease observed in the following example may be conveniently described in association with the foregoing case.

M. M——, aged forty-seven, from Penzance, was admitted on the 6th of August. He had a large tumour growing from the under jaw; but whilst it appeared to grow from every part of the bone, it showed more activity in that portion which grew from its concavity into the mouth. Laterally it extended to the last bicuspid on each side; in front it appeared to be little more than a general thickening of the soft structures covering the bone; whilst within it had attained a very considerable size, filling up the concavity of the jaw, and presenting backwards towards the fauces, thrusting the tongue upwards and backwards, and thereby seriously interfering with the functions of speech, respiration, and deglutition. The growth was painful, tender to the touch, and somewhat elastic; and it bled both spontaneously and on the slightest touch.

The patient had been a very careful, steady man; and there were no antecedent facts connected with habit or family history which could throw any light on the cause of the disease. It commenced, he said, in a small tumour below the tongue about a twelvemonth ago: it had, therefore, shown rapid progress in attaining its present size. There were two lymphatic glands in the neck, below the body of the jaw on the right side, which had enlarged; and the submaxillary gland was indurated.

The aspect and history of the disease gave the impression—in which Mr. Gay's colleagues and his friend Mr. Coulson, who had seen the case, concurred—that it was a malignant growth taking its origin from the cancellated tissue of the bone; and, with this impression, Mr. Gay advised its extirpation, rather with the view of releasing the patient from a growth which threatened speedily to occlude the passages to the lungs and stomach, than with that of eradicating the disease from the system.

Mr. Gay performed the operation on the 7th of August. After cutting through the integuments from each corner of the mouth downwards below the base of the jaw, and reflecting them, as well as the intermediate portion from the symphysis, back, Mr. Gay sawed the bone through on each side, keeping quite clear of the disease. This was accomplished with considerable difficulty. One saw broke in the process; and this was not to be wondered at when, on inspecting the bone, its tissues were found to have become exceedingly compact, so that in density it resembled ivory. As soon as this part of the operation had been accomplished, Mr. Gay proceeded to dissect away the growth from beneath the tongue, and from the front of the larynx, with which it was in contact, and subsequently from its inferior connexions with the parts at the base of the mouth. An incision was then carried downwards along the neck from that which began at the right corner of the mouth to the diseased lymphatic glands, by which these were removed. The submaxillary, as it was hoped that it had only become sympathetically affected, was not interferred with. A few vessels had to be secured in the deeper parts of this somewhat extensive wound; and the parts were brought together, and secured by silver suture. A ligature, which had been put through the tongue for the purpose of controlling it during the operation, was allowed to remain in the event of its becoming necessary to overcome any tendency on the part of its disarranged muscular apparatus to draw it backwards towards the pharynx.

The after-history of the case was, in the main, most satisfactory. The tongue did not manifest any disposition to become unruly; its tip, however, to the extent of an inch, sloughed. With the help of a spoon, and the constant and assiduous attention of the deaconesses who devote themselves to the care of the patients at this hospital, the patient was able early to take abundance of nourishment and the necessary amount of stimulus, so that healing commenced quickly, and at the end of ten days had made such progress, and the patient's health had so far recovered, that he expressed himself able to leave the hospital in order to make a more agreeable use of his visit to London. At the expiration of a further fortnight he returned to Penzance, where important duties called him, or at least required his supervision, which he said he was quite able to give to them.

The last report, about five weeks since, announced his convalescence, with very fair and unexpected powers of speech and mastication. An artificial portion of jaw, in lieu of that taken away, which Mr. Fox, one of the dentists to the hospital, says he can supply, will go far to counteract some of the ill results of so considerable a mutilation. The operation was performed under the influence of chloroform.

An examination of the parts removed showed that the disease originated in the periosteum, and, from the character of the cells, which with some areolar stroma constituted the entire growth, that it was unquestionably myeloid.

### A NOTE ON MENORRHAGIA.

Troublesome cases of menorrhagia treated with success are always worthy of record, for there are few disorders more trying to the medical practitioner. The result of treatment in the following instance, which was lately under Dr. Murray's care at this hospital, was very favorable. The patient was a woman of highly scrofulous habit. She had had many children, and her uterus was large, heavy, and indurated, with the mucous membrane of its interior granular, and bleeding at the least touch. The loss of blood was severe at the periods, and continued during their intervals, though not to so great an extent. She had, however, sustained so much loss, that complete amaurosis had occurred, and her health was otherwise most seriously damaged,—the nervous system being generally shattered.

Dr. Murray, after having tried plugging, and the various styptics usually employed, even injecting the uterus with a solution of iron, met with great success in adopting the course which was originally, we believe, suggested by Dr. Henry Bennett,—viz., plugging the uterus itself.

Three or four small pieces of cotton wool were used, to each of which were fastened long pieces of silk for the purpose of withdrawal. These little plugs having been first dipped in a solution of the sesquichloride of iron, were carefully pushed through the speculum into the uterine cavity, by means of the sound, and allowed to remain *in situ* from twenty-four to forty-eight hours, the iron preventing any unpleasant consequences from decomposition. This treatment was pursued for about ten days, after which time menstruation took place in a normal manner, and there followed no hæmorrhage of any kind.

Dr. Murray is disposed to think that the delay which often takes place before local remedies are resorted to in some cases of menorrhagia, is frequently attended with the most mischievous results. The timely application of various forms of styptics to the uterine membrane will often save the patient from the serious and sometimes irreparable consequences of a long-continued drain from the system.

## ST. MARY'S HOSPITAL.

### CASES OF HÆMATEMESIS.

(Under the care of Dr. SIEVEKING.

SOME interest attaches to the following cases from the circumstance that the patients rapidly improved after the occurrence of an eruption about the body. Mr. J. R. Hill, house-surgeon, has been good enough to give us a note of the history.

M. B——, aged twenty-four, admitted June 16th; servant, looks strong and healthy, and well nourished. Had rheumatic fever, and after this she suffered from shortness of breath and palpitation of the heart. She was well up to ten months ago, when she was taken ill with pain in the head, giddiness, &c. Vomited her food, and had great pain in the left part of the chest. She recovered in a week, but the sickness still remained, which had lasted up till the time of admission. She was treated as an out-patient for some time. On the 12th of June her hands and feet swelled, and were very painful; this symptom disappeared, leaving stiffness and soreness. She then spat up some red blood after a slight cough. Vomits a dark-brown fluid; catamenia regular; tongue furred, darker in centre; breath very fetid; pulse 84; bowels regular. Ordered compound soap pill, two grains; tannic acid, three grains: three times a day.

June 17th.—Great pain in epigastrium extending to shoulder; appetite bad; vomiting blood; throat sore; heart normal. Ordered blister to epigastrium, and milk diet.

19th.—Pain relieved, but still bringing up large quantities of blood and vomit. Ordered, fifteen minims of tincture of muriate of iron, and an ounce of infusion of quassia, three times a day.

20th.—Still great pain, and hæmatemesis. Ordered, five minims of dilute hydrocyanic acid, ten grains of bismuth, ten grains of carbonate of magnesia, and an ounce of almond mixture, three times a day.

24th.—Bowels confined; pain in head and epigastrium (which was relieved by blister).

27th.—To be fed by beef-tea enema.

28th.—To have ten grains of compound kino powder three times a day, and a blister to the epigastrium.

29th.—Great thirst; felt giddy and fell out of bed last night; had an epileptic fit; vomited a small quantity of blood. Ordered bismuth and dilute hydrocyanic acid.

July 2nd.—Still vomiting small quantities of blood, though improving.

4th.—Not so well; great pain in epigastrium; very sick. Ordered gelatine and milk alone.

6th.—No sickness, but an eruption of vesicles in groups has broken out over the body, which burst and leave a brown scab on face, chest, and arms, looking very much like eczema.

10th.—Improving; no sickness. Still on gelatine and milk.

19th.—Mutton-chop ordered; no sickness; improving.

28th.—Still in the hospital, but has had no more sickness nor pain in the epigastrium.

Some few months ago, a girl was admitted with violent hæmatemesis, which did not yield to any treatment until an eruption of erythema nodosum appeared, when she rapidly improved and went out quite well.

## ST. GEORGE'S HOSPITAL.

### A CASE OF ENCEPHALOID DISEASE OF THE LIVER; RAPID DEPOSIT.

(Under the care of Dr. WADHAM.)

A CASE involving some points of interest in regard to cancerous disease of the liver was lately in this hospital. Of 83 such cases analysed by Frerichs, only 7 were in persons under thirty years of age. The age of this patient was twenty-eight. The rapidity of progress was unusually remarkable. As more often happens than not in cancer of the liver, there was no jaundice. Dr. Reginald Thompson, medical registrar, has obliged us with notes.

The patient, Henry H——, was a carpenter, who was admitted on Nov. 14th, 1867. He had been in perfect health until five weeks before admission. His illness began with rigors, and pain in the right side of the thorax and in the liver. He had not been jaundiced.

On admission, he was suffering principally from dyspnœa. On being closely questioned, he said he had a feeling of constriction—of tight lacing—across the liver. This organ was found to be enormously enlarged; it extended from the level of the right nipple to below the umbilicus and measured in this direction eleven inches; it was nodular and hard. There was no tenderness and no jaundice. The right lung was dull, and the sputa contained a large quantity of elastic tissue. The cervical veins were much distended. The disease was diagnosed to be encephaloid deposit in the liver and right lung. The patient died on the 22nd November, the liver having increased in size.

The post-mortem examination was made by Mr. Pick. Several masses of encephaloid cancer were found in the right lung and in the liver. This organ was of an enormous size, and weighed 210 ounces.

### A CASE OF SOFTENING OF THE BRAIN, WITH APHASIA.

(Under the care of Dr. OGLE.)

The patient whose case is detailed below, from notes kindly supplied by Dr. Reginald Thompson, medical registrar, used to walk about the ward in a restless and vacant manner for several days after his admission, during which time we saw him more than once. His power of voluntary movements, taken in connexion with the extensive softening which was discovered after death, is an interesting point. He presented a good example of atactic aphasia, accompanied by amnemonia, of which a number of instances are given in Dr. Ogle's excellent paper on "Aphasia and Agraphia" in the lately published volume of "St. George's Hospital Reports."

Charles H——, aged thirty, was admitted on the 7th of October last. He was a groom in the Chantilly stables and had been sent over from France the day before his admission into the hospital. No history was obtained, and he was incapable of giving any account of himself. He could say "yes" and "no," and one or two short French words; but generally he talked gibberish and answered questions quite unintelligibly. He could not give his name; and would not, or could not, write. He could not protrude his tongue; he could walk well, and fed himself properly with both hands; looked melancholy and hopeless. On close examination, there seemed to be some paralysis of the right side of the face, which was a little drawn, and not so mobile as the left; pupils large. At the apex of the heart a very soft sound was heard accompanying the first sound.

He was ordered calomel and senna, and two drachms of the solution of bichloride of mercury, twice a day. On the 15th he was not so well, and was troublesome and fidgety during the night. On the 16th he had two fits, in which the left side of the face and the right arm and leg were convulsed. The fits were very transient. He got noisier at night, and was reported to swear a good deal. On the 17th he had another fit: pupils equally large and much dilated. He had a succession of fits throughout the night of the 18th. From this time he became comatose, and died at noon on the 20th.

The following notes of the necropsy were made by Mr. Thos. Pick:—The body was in good condition. The whole of the middle lobe of the left side of the brain was more or less softened, the softening being greatest in the centre, but reaching the surface of the brain along the margin of the horizontal fissure of Sylvius in the temporo-sphenoid lobe. In the centre of the middle lobe the softening extended as high as a level with the upper surface of the corpus callosum; in front it extended as far forwards, possibly a little in front of the fissure of Rolando. The ventricles were full of clear fluid. The arteries were quite natural. The lungs were very œdematous and emphysematous along their free margins: the heart was semi-contracted and empty; the margin of the tricuspid valve was very slightly thickened, but otherwise the organ was quite natural. The liver was slightly congested; the spleen small and pulpy; the kidneys were full of black blood, the surface was granular and there was slight diminution in the amount of the secreting structure.

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## UNIVERSITY COLLEGE HOSPITAL.

### A NOTE ON CHRONIC URTICARIA.

Chronic urticaria is often a very troublesome affection, and a few hints regarding it, based on hospital experience, will be doubtless acceptable to our readers. Dr. Hillier, physician to the Skin Infirmary of this hospital, considers the disease to be one requiring the utmost discrimination for its treatment. Occasionally a case will be found to depend on one article of diet, which it requires careful inquiries and observation to ascertain. One case was found to be caused by cheese, another by coffee, another by tea. In such cases the mere disuse of the offending article will sometimes cure the disease. When the patient is of a rheumatic tendency, alkaline medicines are of use. In very many cases colchicum is of great service; some of these are probably gouty in their nature. In many of them, however, it is not possible to find any indications of a gouty constitution. Dr. Hillier has seen great benefit from the use of quinine, especially when the attacks occur with marked periodicity. When there is no gastro-intestinal irritation, arsenic has been sometimes found useful. Unfortunately it is not always easy to decide what remedy shall first be tried. One case coming under Dr. Hillier's care from time to time is always cured by a few doses of cod-liver oil. Dilute nitric acid has occasionally been found serviceable.

Of 28 cases of which Dr. Hillier has notes, 9 were either cured or received much benefit from the use of colchicum and alkalies. In 4, quinine was given, of which 3 were cured, and of 1 the result was not known. In 2 cases nitric acid relieved the patient. Of 3 cases under alkaline treatment alone, 2 were cured, and in 1 the result was unknown. Arsenic cured 1 very obstinate case, and aggravated another case.

In all cases of chronic urticaria it is important to inquire as to the possible existence of bugs, fleas, pediculi corporis, or of the acarus scabiei. It is not uncommon for patients to suffer a long time from urticaria caused by one of these parasites, whilst other signs of their irritation are almost absent. In these cases ointment containing stavesacre or sulphur, with attention to cleanliness of bed- and body-linen, will cure the disease. Local applications in other cases appear of little permanent use; lotions or ointments containing chloroform, or nitric or acetic acid lotions, give momentary relief.

Pruriginous strophulus, a disease of infants, closely allied to urticaria, is usually relieved by the syrup of the iodide of iron.

# Provincial Hospital Reports.

## GENERAL HOSPITAL NEAR NOTTINGHAM.

### GANGRENE OF THE KNEE, OPENING THE JOINT; DEATH.

(Under the care of Mr. Thompson).

We are indebted to Mr. Thompson, junior, for notes of this case.

James G——, aged seventy-eight, a blacksmith, was admitted into the hospital on the 2nd of January, 1867. Patient states that he has always enjoyed remarkably good health until the beginning of last October, when he first noticed that his left knee felt numb and dead; there was no redness at this time, but he was unable to walk, because of pain. He says that his left foot and leg always felt cold. In November the joint became swollen, red, and very painful; and about the 10th of December, he observed a small black spot on the outer side of the knee-cap, which gradually spread, and formed a complete circle round the patella, the skin covering the patella itself being quite natural in its appearance. He never received any injury to the part, although, from the nature of his employment, he may have done so unknowingly.

*Present state.*—To all appearance he is a healthy-looking man for his age: arcus senilis well marked; there is rigidity of his arteries, which may be seen beating at the bend of elbows and wrists, and feel hard, and roll from under finger; pulse 76, rather weak and intermittent; heart-sounds feeble; no murmurs heard; appetite good; sleeps tolerably; the thigh is warm; some fulness in the groin; the foot and leg feel cold, but he says they do not feel numb. Over the knee is a large slough, 6 by 5 inches in diameter; black at its outer edges, where it is separating from the sound skin, but of a purplish green color in the centre. The limb was in a bent position, and he cannot bear it to be put straight. The foot and leg were enveloped in cotton wool, a bread poultice applied to the knee, and patient ordered to take a mixture with ammonia, chloric ether, and cascarilla.

Jan. 18th.—The slough continues to separate; the central portion over the patella being now quite dead and black. To continue treatment.

23rd.—To-day, on a portion of the slough being removed, the joint was found to be quite open, the inner condyle of the femur being quite exposed; a most offensive odor now comes from the wound. Two grains of quinine were ordered three times a day.

28th.—During the last three days he has had diarrhœa; slough continues to separate; does not complain of pain. To continue pill, and to have a chalk mixture and six ounces of wine. A small bedsore was discovered to-day on his right hip, of which he did not complain.

Feb. 3rd.—Is certainly not so well; diarrhœa has ceased. Now complains of much pain in knee, which discharges a good quantity of very fetid pus; skin hot and dry; pulse 140; tongue red and dry, brownish in centre. To repeat pill, and ammonia mixture, with brandy and eggs, &c.

4th.—Is much exhausted; takes very little nourishment; on dressing the knee, a large blister, full of dark-greenish fluid, is seen on the back of the leg.

5th.—The blister on the back of the leg has burst, and the skin beneath is black and discolored. Patient is evidently sinking; pulse 144, weak and small; tongue dry and brown; skin cold and clammy.

6th.—Died at three A.M.

*Autopsy eight hours after death.*—Lungs congested, with slight inflammation of the bronchi. Heart soft, pale, flabby, and covered with fat; chambers of the heart dilated: ossific deposits were seen on the aortic and mitral valves. Atheromatous deposits in the coats of the aorta, and more especially abundant where branches were given off. The aorta at its bifurcation was quite brittle, and cracked beneath the finger.

*Remarks.*—The case presents two points of interest:—1st. The fact that the *knee* should have been the seat of this disease, instead of and without any affection of the toes, as is the usual case in gangrena senilis; and 2nd, the peculiar mode in which the disease developed itself, passing round the patella, and leaving the centre portion of its natural hue and sensibility, this portion gradually being involved by the disease.

Further examination of the arteries, leg, &c., was not permitted.

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## HUDDERSFIELD INFIRMARY.

### A CASE OF ANEURISM OF THE FEMORAL ARTERY; LIGATURE OF THE EXTERNAL ILIAC.

(Under the care of Mr. RHODES.)

WE are indebted to Mr. Thomas Brown, house-surgeon, for notes of the following case:—

George B——, eleven years of age, was admitted into the infirmary on January 29th, 1865. On examination a pulsating tumour was found situated at the lower border of Poupart's ligament, on the left side, about the size of a walnut. The boy stated that he had not much pain except when the tumour was pressed upon, or the leg moved. A very slight difference was found to exist in the size of the legs. Both motion and sensation were considerably impaired, and two sloughs, each about the size of a florin, occupied the dorsum of the left foot. The swelling was first noticed about three months ago, and immediately after recovery from an attack of acute rheumatism, for which the ordinary alkaline treatment had been adopted. Distal compression was tried for some time with no good effect, for the tumour enlarged rapidly, and became very painful. The external iliac artery was tied on February 21st by Mr. Rhodes. After the operation the limb was enveloped in cotton wool, and in six hours the temperature of the leg was found to be almost equal to that of the other. No pulsation could be detected in the tumour after the operation, and it steadily diminished in size during his stay in the infirmary.

The ligature was removed on the tenth day. The wound healed well, and the boy was discharged on the 12th May, able to walk comfortably with the aid of a stick. Nothing remained of the tumour but a small hard lump about one-fourth its original size.

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# Medical Societies.

FEBRUARY—MARCH.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

MR. SAMUEL SOLLY, F.R.S., President, in the Chair.

### (1) ON CERTAIN POINTS IN THE ANATOMY AND PATHOLOGY OF BRIGHT'S DISEASE OF THE KIDNEY; AND (2) ON THE INFLUENCE OF THE MINUTE BLOOD-VESSELS UPON THE CIRCULATION.

BY GEORGE JOHNSON, M.D.,

Physician to King's College Hospital.

IT is now generally admitted that cases of chronic Bright's disease may be arranged in two distinct classes:—1. Cases in which the kidney is large, pale, and smooth on the surface. 2. Cases in which the kidney is small, red, and granular. In the forty-second volume of the "Medico-Chirurgical Transactions" the author pointed out the chief features by which the two classes of cases may be distinguished. There is some difference of opinion with regard to the anatomy and pathology of the various forms of Bright's disease. Some pathologists maintain that the small granular kidney is the result of an intertubular deposit. The author maintains that there is no proof of such deposit; while the red color and the vascularity of these kidneys seen in an advanced stage afford proof that no such deposit exists. All the essential changes in this disease are intra-tubular.

In the 33rd volume of the "Transactions" the author first noted the fact, that in all the forms of chronic Bright's disease the muscular walls of the minute renal arteries are hypertrophied. He then supposed that this was the result of an effort to propel the blood onwards. It is now generally admitted that the minute arteries act as stop-cocks: that they regulate the blood-supply, but they have no propelling power. The explanation of the hypertrophy of the small renal arteries which is most in accordance with the facts is that, in proportion to the destruction of the renal gland cells, there is less demand for blood to be acted upon by the gland; the renal arteries consequently contract upon their contents so as to maintain the balance between the blood supply and the diminished secretory action of the kidney. This continued overaction of the small arteries in antagonism to the heart results in hypertrophy of their muscular walls. In the advanced stages of some forms of chronic Bright's disease the walls of the arteries as well as those of the Malpigian capillaries assume a white and wax-like appearance—a result probably of infiltration of albuminous or fibrinous materials into the tissues. This appearance of degeneration is secondary, and not essential. It has long been known that the left ventricle of the heart is hypertrophied in nearly all cases of chronic Bright's disease. This is believed to result from the resistance offered by the small arteries throughout the body to the passage of blood contaminated with urinary excreta. The muscular walls of the arteries have been found hypertrophied in the brain, in the pia mater, and in the intestines of those who have died of chronic Bright's disease, and it is probable that this anatomical evidence of arterial resistance to the circulation in these cases will soon be much increased.

Reference was then made to the experiments of Hales upon animals recently killed, as well as to those of Blake upon living animals, to prove the influence of the minute arteries upon the circulation. The sudden arrest of the circulation through the lungs by the admission of atmospheric air into the veins, and the impediment to the pulmonary circulation in cholera, are both referred to the same cause—namely, contraction of the small arteries upon their contents. Again, some of the phenomena of apnœa admit of complete explanation only by reference to the contraction of the small arteries. A dog was killed by a ligature on the trachea. The chest being opened, immediately the right heart was distended, the left nearly empty. The lungs were pale, nearly bloodless, and extremely collapsed. The minute pulmonary arteries must have arrested the mass of the blood before it reached the capillaries.

A comparison of the phenomena of apnœa with those of renal disease appears to warrant the conclusion that an impeded circulation, the result of arterial contraction, may occur under two different conditions:—1. When the respiratory changes in the lungs are impeded, or when the secretory action of a gland, such as the kidney, is impaired, the minute arteries of the lung or of the kidney, in obedience probably to a stimulus conveyed to them through the nerves from the capillaries, restrict and retard the blood-stream. The anæmia of the pulmonary capillaries in cases of acute apnœa, and the overgrowth of the muscular walls of the renal arteries in cases of chronic Bright's disease, are results of one and the same physiological principle. 2. The minute arteries in any part of the body may be excited to contract by their contents becoming abnormal, and therefore more or less noxious to the tissues. We have an illustration of this in the resistance which the systemic arteries offer to the passage of macerated black blood, and of blood contaminated with urinary excreta. We have another illustration of it when certain foreign materials are either accidentally in man, or designedly in animals, introduced into the veins, and then arrest the flow of blood through the lungs. The late Dr. Alison and many other pathologists have taught that the minute bloodvessels have the power to antagonise the heart and to check the circulation. This power of resistance has been almost universally believed to reside in the capillaries, which have no contractile power; while the stopcock action of the small arteries, with their contractile, muscular walls, has been almost ignored by pathologists. One of the main objects of this communication has been to direct attention to this action of the small arteries in various patholgical states of the system, and to adduce anatomical as well as physiological evidence of its reality and its powerful influence.

The President thanked Dr. Johnson for his admirable paper the importance of his investigations into the muscularity of the minute arteries could not well be over-estimated.

Dr. Pavy was highly pleased with Dr. Johnson's paper; nevertheless, he must beg leave to dissent from certain statements contained in it. The gist of the paper was to throw on the minute arteries that function which physiologists are accustomed to assign to the capillaries. Dr. Johnson had not proved this to his satisfaction. The entrance of air into the veins caused arrest of blood in the lungs. Was it in the minute arteries or in the capillaries? He held that the changes which take place in the capillaries materially affected the passage of the blood through them. In asphyxia, Dr. Johnson says that the black blood causes contraction of the arteries. What proof is there of its not being due to stoppage in the capillaries, owing to an arrest of the transformations ordinarily accomplished there? In reality, however, black blood would flow through the vessels even in asphyxia, for he had found that a chemical material might thus pass from one side of the heart to the other.

Dr. Dickinson, while acknowledging the value of Dr. Johnson's paper, could not agree with him on all points—as, for instance, when he denied the existence of disease in the intertubular areolar tissue of the kidney. Why should this tissue be thus insusceptible of disease when elsewhere it was so liable to it? The granular form of kidney he believed to be due to a pseudo-inflammatory change. Between two granulations, one could always discover a shred of fibrous tissue still unchanged—not broken-down renal structure. The red color he held, depended on vascularity of the new formation, which, although it thus contracted, never compressed the larger arteries. Dr. Johnson maintained that the granular casts were of epithelial origin. He (Dr. Dickinson) thought they were rather disintegrated fibrin; for he had been able to produce the same microscopical appearances by soaking fibrin in water. He had also shown, by passing water through the kidneys, that the obstruction was greater in the small granular kidney than in the large white one.

Dr. Sanderson, after expressing his admiration of Dr. Johnson's paper, and his sense of the importance of his conclusions as to the part played by the capillary arteries in disease, adverted to the recent researches of Professor Ludwig and Dr. Cyon, which had for their object to determine whether the excitation of certain sensory nerves has any influence on the arterial pressure through the vaso-motor nerves. Several sensory nerves were experimented on, but especially the cardiac branches of the vagus. In the rabbit, there is a nerve which, leaving the vagus high up in the neck, passes downwards between it and the sympathetic towards the stellate ganglion and ends in the heart. On exciting the peripheral end of this nerve after division in the neck, no effect is produced on the circulation; but if the central end is faradised, the arterial pressure sinks. The depression amounts to two or three inches of mercury. It is so marked that it can be made out independently of the manometer. The arteries visibly contract, and if the belly is opened during life the surface of the kidneys is seen to become brighter. At the same time, the pulse becomes slower in consequence of reflex excitation of the vagus, for this last effect is absent if the vagi, have been previously divided. These experiments were made in animals under various conditions—e.g., before and after section of both vagi, after removal of the sternum, under the influence of woorara, &c. The experiments showed that the excitation of this sensory nerve alters the balance of the circulation—increasing the quantity of blood in the veins, decreasing that in the arteries. It remained to show whether the influence was exercised on the heart or the capillaries. This was done (1) by previously destroying the stellate ganglion, and thus isolating the heart from the nervous centres and dividing the vagi, when it was found that in animals so treated the effect of stimulating the cardiac branch in the neck was unaltered; and (2) by repeating the experiment after division of the splanchnic nerves. In this experiment of division of the splanchnic nerve, Ludwig and Cyon found, as had been found before, that the arterial pressure was lowered, in consequence of the paralysis of the capillary arteries of the kidneys and other abdominal viscera. In such an animal, scarcely any effect was produced by excitation of the central end of the cardiac branch of the vagus. Thus it appears that in the reflex arrangement by which the arterial pressure is governed, the principal afferent nerves are associated with the vagus, the chief motor nerve being the splanchnic. But the most interesting result of all is that the arterial pressure is governed, not by the capillaries of the whole body, but by those of the abdominal viscera—a discovery which throws much light on the way in which changes believed by Dr. Johnson to exist in Bright's disease may effect the arterial pressure. With reference to the phenomena of apnœa, referred to by Dr. Johnson in illustration, Dr. Sanderson remarked that the extreme pallor of the lung observed in dogs asphyxiated by occlusion depends in great measure on the quantity of air that happens to be in the chest at the time the trachea is tied. He had ascertained by experiment some years ago, that if, at the moment of occlusion, the chest be filled with air, the lungs are found extremely white after death; in the contrary case, more or less hyperæmic. Secondly, he affirmed that it is not the case that the circulation of unaërated blood increases the arterial tension. In ordinary apnœa, the arterial tension rises during the second minute after occlusion, because the animal struggles; it falls the moment the struggle ceases. The fact that in an animal suffocated under the influence of woorara, when all muscular action is in abeyance, excepting the contraction of the heart and capillary arteries, the phenomenon is not observed, cannot be explained, as suggested by Dr. Johnson, as dependent on the paralysing action of the poison on the capillary arteries, for there is evidence that these vessels are as exempt from its influence as the heart itself.

Dr. Johnson, in reply, stated that he was under the impression that he gave the ordinary view when he stated that the minute arteries regulated the flow of the blood, although Dr. Pavy objected to the statement. As for Dr. Dickinson's objections with regard to the intertubular tissue, some held that there was no such substance, whilst his experiment of passing water through the kidney was of doubtful value. Speaking of Dr. Burdon Sanderson's objections, Dr. Johnson mentioned that his statements were founded on Dr. J. Reid's experiments, whilst certain of Dr. Sanderson's doctrines were completely opposed to those of Bernard.

## OBSTETRICAL SOCIETY OF LONDON.

Dr. Hall Davis, President.

Dr. Wynn Williams and Mr. T. Chambers were requested to act as auditors of the financial statement for the current year.

Dr. D. Lloyd Roberts, of Manchester, read a paper

### ON A CASE OF CÆSAREAN SECTION.

The patient was a young woman aged twenty-one, a farm servant, who was sent to St. Mary's Hospital, Manchester, on June 2nd, 1867, being at the time in labour. On examination, the outlet of the pelvis was found much contracted; the arch of the pubis reduced to a mere slit, just wide enough to admit the index-finger; and the distance between the tuberosities of the ischia was less than an inch and a half. Under these circumstances it was decided to perform the Cæsarean section. This was done on June 3rd. The child was extracted alive. The mother died on the sixth day. At the post-mortem examination the external wound was found to be nearly united. There were evidences of diffused peritonitis. The edges of the uterine wound were everted and flabby. The lower portion of the cervix was soft and dark-colored; and the os was patulous, and nearly black, as if gangrenous. The author remarked that the diminution of the pelvis was not caused by rickets or mollities ossium. There was complete anchylosis between the sacrum and ilium on the left side, and as nearly as possible on the right. The sacrum was smaller than natural. The diminution of the pelvis was in its transverse diameters, and the outlet was much more contracted than the brim. The exact duration of her labour was obscure; but while the tonic contractions of the uterus were strong and continuous to the end, the alternate or labour pains were as nearly as possible suspended, showing exhaustion of uterine energy. In the course of the operation the ether-spray had been used; but the author stated that he should not again douche the uterus with it, for he thought it had the effect of hardening the uterine tissue and interfering with the effusion of plastic lymph. The exact dimensions of the pelvis were given, and the cause was further illustrated by diagrams and dry preparation of the pelvis itself.

Dr. Graily Hewitt had had an opportunity of seeing the pelvis previous to the meeting. It was a most interesting instance of the pelvis technically known as "Robert's pelvis," and only two or three such he believed had been described. The peculiarity in the shape arose from the occurrence of anchylosis of the sacrum on both sides to the adjacent bones, differing from Naegelé's oblique ovate pelvis in the fact that in Robert's pelvis the anchylosis was on both sides, in Naegelé's on one side only.

Dr. Greenhalgh remarked that he had never seen a pelvis similarly distorted. He was disposed to attribute the deformity to arrest of development of the sacrum, to which the ossa innominata were firmly anchylosed, and in depth it resembled the male pelvis. In Naegelé's museum Dr. Greenhalgh had seen somewhat similar specimens, but confined to one side, constituting the oblique pelvis of that author.

Dr. Greenhalgh exhibited the uterus of a patient upon whom he performed the Cæsarean Section eighteen months ago, on account of epithelioma of the cervix. For more than six months after the operation, the disease, which was advancing rapidly, underwent considerable improvement, the hæmorrhage and pain ceasing, and the local affection dwindling to an almost inappreciable degree. The disease then again began steadily to advance, and ultimately destroyed her. It was interesting to observe that the body and fundus of the uterus with appendages were healthy, the neck being occupied by a large disintegrating epitheliomatous growth. The incision in the uterus, originally about six inches in length, now reduced to one inch, was perfectly healed; the serous covering, however, appeared not to have been reproduced.

Dr. Barnes exhibited the Uterus of a patient who had died from Puerperal Fever. The patient was twenty-three years of age. She was delivered after a natural labour, child living, on the 16th of November. She was seized with severe pain in the abdomen, shivering, and fever on the 18th; and on the 23rd she died. There was nothing to favor the conjecture that she had contracted any disease of an epidemic character. The case appeared to be one of simple autogenetic origin. On examination, the pelvis, peritoneum, and the peritoneal surfaces of the intestines in relation with the pelvic organs were covered with soft fibrin, breaking down into pus. The cavity of the uterus was empty; the placental seat, near the fundus, still prominent; the walls were thick and fairly contracted. There was no appearance of pus or putrilage in the uterine sinuses. The sinuses even in the neighborhood of the placental seat were clean and healthy. The veins on either side of the neck of the uterus in the broad ligaments also seemed healthy. In one of these there was a feebly-contracted fresh clot.

Dr. Barnes also showed a placenta displaying Fibrinous Deposits, forwarded by Mr. John Marshall, of Dover. The placenta was taken from a patient in good health; and the child, born at the full term of gestation, was alive and well. Dr. Barnes observed that these deposits generally take place towards the end of gestation; and the effused fibrin is commonly found in greatest quantity around the margin of the placenta on the fœtal surface, in the neighborhood of the circular vein. It does not appear to involve change in the proper structure of the placenta, and the child is generally born alive. It occurs in persons quite free from syphilitic taint.

Dr. Meadows exhibited a new Uterine Sound, to which was attached a Metroscope. The chief peculiarity of the sound consisted in having the measuring points on the concavity instead of the convexity of the instrument. The metroscope was formed by means of a glass prism, fixed at an angle to the handle of the sound, and was so placed that, when used through the speculum, objects could be seen almost at a right angle to the axis of the speculum, and at a considerable distance from the refracting surface of the prism.

Dr. Heywood Smith exhibited a child, five days old, affected with what he believed to be encephalocele The tumour occupied the posterior aspect of the head, and measured 6¼ inches in girth at its root, and about 8 inches from the superior margin of the root over the tumour to the inferior margin. Dr. H. Smith also showed the Placenta, which presented the peculiarity of having the funis fused with the membranes for the space of six inches.

Dr. Eastlake exhibited a Child in whom the Posterior Fontanelle was large and quadrangular.

Dr. Graily Hewitt exhibited a specimen of Traumatic Aneurism of the Uterine Artery. The subject of this unusual case was an Irishwoman, a patient of University College Hospital, the mother of several children, aged thirty-seven. She was delivered by means of the forceps, and for the first few days appeared perfectly well. On or about the fourth day after labour, her husband came home drunk, and it is stated that he knelt upon her as she lay in bed. No immediately bad effects followed, but thirteen days after labour a slight flooding occurred. Inflammatory action on the right side of the abdomen became evident. Twenty days after labour, a second violent flooding took place, from which she nearly died. Thirty-one days after labour large quantities of yellowish matter escaped per vaginam. On the thirty-fourth day a third violent flooding came on; and on the thirty-seventh day there occurred again a fourth and final violent hæmorrhage, from the effects of which she could not be rallied. The parts exhibited consist of the uterus and neighboring structures. The uterus is large, os patent, a small clot within it. At the junction of the cervix and body are two depressions, one on each side; on the left side there projected into the uterus from the pouch in question a rounded mass half an inch in diameter. By the side of this projecting mass a probe freely passed through the pouch into the interior of a large abscess, which reached from the broad ligament to the kidney. The little mass was hollow, contained a small clot of blood, and was perforated at one part of its surface. It was found, on further dissection, to be an aneurismal dilatation connected directly with the uterine artery, which opened freely into it. The sac itself was composed of layers of fibrin. It is evident that the uterus had been bruised, and probably actually lacerated, by the pressure employed against the projecting pelvic brim behind, the organ being at the time of the injury still of considerable size. The perforation of the uterine wall, and the abscess, were secondary effects; the aneurismal enlargement showed that the uterine artery had been injured, and the source of the repeated hæmorrhages from the uterus was the enlargement in question. The case appears to be unique.

Dr. Aveling considered that it would have been advisable to dilate the cervix with a sponge tent, and then explore the uterine cavity with a view both to diagnosis and treatment.

Dr. Routh, understanding from Dr. Hewitt that he had detected the abscess during life, and judging with the advantage of the post-mortem examination before him, could not but think that perhaps something more might have been done before death. A sponge tent applied would have given a freer exit to the pus subsequently, and at any rate checked the hæmorrhage. Moreover, it would have revealed the existence of this pulsatory tumour, which might have justified the injection of tincture of the sesquichloride of iron into the uterine cavity, or a drop or two of the perchloride might have been injected into the tumour itself, or the continuous galvanic current applied, and so the tumour destroyed. After the second hæmorrhage some interference was justifiable, and the third might not have been fatal. He did not, however, in any way call in question Dr. Hewitt's skill, as the case was very obscure during life.

Dr. Graily Hewitt stated, in reply, that he had not seen the patient during the first part of her illness. Her condition was such that he did not consider dilatation of the os with the view of exploring the interior of the uterus would have been a proper procedure. Looking to the fact that the probability was during life in favor of the existence of rupture of some vessel of the uterus, extreme rest and quiet appeared to afford the patient the best chance of recovery. The condition actually present was of course not suspected there being no instance of the kind on record.

Dr. Snow Beck read a paper

### ON A CASE OF PUERPERAL FEVER OR PUERPERAL PYÆMIA AFTER AN ABORTION.

In this case, abortion was induced at the end of the fourth month, in a healthy young lady, aged twenty-six. After a short time the symptoms observed were, dirty and muddy complexion, great weakness, intense thirst, constant retching, cold perspirations, extremely rapid pulse, mind clear, though wandering sometimes, and much irritability. She died on the sixth day after the abortion. The post-mortem examination showed the uterus large and flabby, a portion of placenta imbued with purulent fluid, adherent to the uterus, and attached to it a considerable amount of coagulated blood; purulent fluid in the uterine sinuses, which were otherwise healthy, but so patent as to admit of fluid being injected through them; peritoneum not injected, though the pelvic portion was covered by a thin layer of soft lymph, and there was effusion of brownish serosity into the cavity; lobular congestion of the lungs; effusion of serum into the pleuræ, with soft lymph on the surface; small collections of similar exudation beneath the pleura. The minute structure of the internal surface of the uterus was fully detailed, and the relations of the placenta found to accord with the descriptions of the Hunters and others. The case appeared clearly to show the purulent infection of the general system through the pervious state of the uterine sinuses; also, that one of the most fatal forms of puerperal fever arose from this cause; the sinuses being pervious in consequence of a want of permanent contraction of the uterus. The statement of Dr. Barnes that he had repeatedly seen puerperal fever after perfect contraction of the uterus, was examined, and the cases related by him were considered by the author to be diseases very different from puerperal fever,—viz., Bright's disease, obstruction of the gall-duct, acute atrophy of the liver, scarlatina, and phlegmasia dolens. Lying-in women, when exposed to the infection of zymotic diseases, frequently took those diseases, but their essential characters remained unchanged. They often existed epidemically, and were infectious, and hence arose the assumed epidemic character and infectious nature of puerperal fever. In the treatment it was considered of much importance to prevent the purulent infection, by effecting a firm and permanent contraction of the uterus; when it had occurred, to cleanse out the uterine cavity, and give the sulphites. The large administration of brandy, and the application of a light bandage were prejudicial, and the latter impossible, from the tenderness of the abdomen and uterus.

After some remarks from Dr. Tyler Smith, the following letter from Dr. Barnes, who was unavoidably absent, was read:—"I am confident that the contraction of the uterus, although a very desirable object to attain, is not a security against puerperal fever. I wish also to observe that Dr. Beck bases his criticisms upon five cases referred to in my lectures, as if these cases embodied very complete views upon puerperal fever. The lectures were broken off for want of time. I had of course a great deal to say about septicæmic or pyæmic puerperal fever arising in the patient's own system. I maintain that the division I propose in those lectures on puerperal fever into excretory, uræmic, cholæmic, scarlatinal, septicæmic, &c., is of great clinical value. For example, a lying-in woman is taken with fever. It is very difficult, sometimes impossible, at first, to tell whether that fever is really of epidemic origin, as scarlatinal, or whether it be strictly of puerperal origin. The puerperal state will impress its stamp upon any kind of fever, no matter whence obtained. Therefore it is a sound clinical proceeding to regard every fever in a lying-in woman as puerperal fever first; then to endeavor to analyze the symptoms with a view to discover the peculiar or special nature of that fever. To say that true puerperal fever is not contagious is to refuse to believe in one of the best-attested facts in medicine."

Dr. Playfair said that he was in the position to relate a fact connected with puerperal fever which seemed to him to be of itself sufficient to negative Dr. Beck's theory that zymotic diseases were not modified by the puerperal state. Some years ago a lying-in ward had been established at King's College Hospital. The utmost care had been taken in the construction and management of the ward, but in spite of every precaution the mortality had been for the last year or two excessively high. About a month ago numerous cases of erysipelas appeared in the surgical wards, and immediately afterwards the two most recently confined women were attacked with a very adynamic form of puerperal fever, which proved fatal in both instances. There can be no doubt that the cause of the disease was the same as that which was producing erysipelas in the surgical wards. There was, however, no trace of erysipelas as such in the puerperal cases, and the natural inference was that the action of the poison was modified by the state of the patients. He was happy to state that the authorities of the hospital had now determined to close the ward altogether. Doubtless a relaxed condition of the uterus was, as Dr. Beck maintained, a strong predisposing cause of puerperal fever; but he believed it would be a most false and dangerous conclusion if we were to generalise from this fact, and overlook the other and well-established modes by which puerperal fever was produced.

Dr. Graily Hewitt stated, that the views he had on a former occasion enunciated on the value of pressure by means of the binder in the early stage of puerperal fever, and as to the extreme value of large doses of alcoholic stimulants at the same period, he still maintained. In a large number of cases, an account of which he hoped shortly to bring before the Society, he had tested their value.

Dr. Wynn Williams considered the disease in question to be identical with that met with during the progress of other diseases, but objected to the name pyæmia, believing it to be an accidental occurrence during the progress of a certain disease, and not always present. He alluded to septicæmia, which was caused by the absorption into the system of the putrid emanations from decomposing animal matter. Pure pus itself, when introduced into the circulation, was no more injurious than any other foreign material, as quicksilver. When scarlatina, erysipelas, and other allied diseases are present, the air is always contaminated with putrid emanations, and this, being brought in contact by vibrios generated in such an atmosphere, or other ways, readily sets up putrefaction in the discharges of the parturient women, and these, being retained, are very apt to infect the patient. If, therefore, in the discharges there is the least offensive smell, it is right at once to have recourse to some disinfectant injection, of which a solution of iodine is the best.

Dr. Braxton Hicks was inclined to join issue with Dr. Beck upon the statement that this preparation tended to prove the existence of open mouths into the placental cavity. He held it almost certain that such openings did not normally exist. In fact, Hunter had overlooked the existence of the delicate membrane which represented the wall of the vessel as it passed through the innermost layer of uterine tissue to ramify on the mucous surface opposed to the placenta. The injection Hunter employed burst through this membrane, and thus it appeared to lead into the placental cavity. This membrane would readily be destroyed under the conditions in which the uterus was placed in the case related. But he thought we should make a dangerous and retrograde step if we ceased to acknowledge the zymotic diseases as a cause of so-called puerperal fever. He considered that that disease may be divided into two great classes, with a few minor kinds—namely, that produced by decomposition of a clot, or the secretions in the uterus, thence called endogenetic; and that derived from zymotic poisons, of which scarlatina and erysipelas were the most common. He had in his own practice found that about three-fourths of the puerperal fever he saw was somehow mixed up with scarlatina. But in the lesser class, owing to the decomposition of clots, he thought very great benefit was to be derived from washing out the uterus in all cases where the discharges were offensive. Of disinfecting fluids he preferred the solution of permanganate of potass, because it showed when it had done its work. It was a curious fact that offensive lochia had been present in all cases but one of acute puerperal mania which he had seen.

Dr. Bruntan said that, with regard to the theory of the production of puerperal fever by zymotic poison, his experience was decidedly negative. He had attended several confinements in which, not only was there scarlet fever in the house, but the children were actually lying ill in the room, and no bad symptom had occurred to the mother during her convalescence. He agreed with Dr. Beck to a considerable extent, especially as to the advantage of securing a firm contraction of the uterus after delivery.

Dr. Sansom could not agree with Dr. Tyler Smith, that drugs were hopeless when once pyæmia had set in, and that "antiseptics were the feeblest of all feeble measures." He was glad to hear that the author of the paper had found the treatment by the sulphites successful. He believed Dr. Polli's introduction of the sulphites into therapeutics to be one of the most valuable additions to medical science. He did not agree, however, with Dr. Polli in his idea that the sulphites do not act upon the organised germs of disease, but upon the pabulum in which these germs are propagated. He believed that they acted directly as septicides. Dr. Sansom stated that he had succeed in producing a series of salts which combined the diffusibility of the sulphites with the potential efficacy of carbolic acid. These agents, the sulpho-carbolates, he would take an early opportunity of introducing to the notice of the profession.

The President agreed with the author in his view of the pathology of the case which he had brought before the Society. It was one of puerperal septicæmia, due to the absorption into the blood of putrid matter from the uterus. But while admitting that perfect contraction of the uterus was most important, he could not consider the want of it as more than an occasional element in producing puerperal fever, which had many other sources. He was of opinion that cases of sporadic peritonitis should not be tabulated with cases of puerperal fever, as the former arose from ordinary causes of inflammation, while puerperal fever, whether accompanied or not by peritonitis, arose from the introduction of poison into the blood, either by the veins or the uterus, or by the lungs in inspiration. Contrary to the author, he was a strict believer in the contagion of puerperal fever immediately from patient to patient, and medially through a third person. He was also convinced that other fevers, as typhus, scarlet fever, measles, and the emanations from hospital gangrene, had been prolific causes of puerperal fever. The taint conveyed from post-mortem examinations was another source of puerperal fever.

This was well illustrated by the statistics of the Vienna Lying-in Hospital where at one time, when the students passed directly from their dissections to the lying-in women, the mortality was 1 in every 10 deliveries. When this arrangement was changed, the per-centage of deaths fell to 1 in 74. Lying-in hospitals are no doubt a boon to poor women without homes, but one greatly mitigated by the fact that the mortality in them from all causes is rarely less than 1 in 90 or 100, and generally greater. The institution of cottage hospitals would no doubt greatly lessen that mortality, and he hoped some day to see them established. Out-door institutions, giving home attendance, such as the Royal Maternity Charity, presented a much smaller mortality. In the Charity only 1 death in 350 deliveries occurred. In conclusion, he could add, from long experience, his testimony to the great value of disinfecting injections of a proper temperature, timely resorted to, in preventing and arresting at its outset septicæmia of uterine origin in cases of putrescent lochia. But they came too late when delirium and other formidable symptoms had supervened.

Dr. Snow Beck, in reply, observed that lying-in women were no doubt liable to the various zymotic diseases; but when they did not occur they presented the same essential characters as at other times. Nothing could be more erroneous than to term every fever and every disease which occurred after parturition "puerperal fever." Typhus fever, scarlet fever, &c., had no doubt again and again been introduced into lying-in hospitals, and decimated the inmates; but the destroying agent was still typhus fever, scarlet fever, &c. Suppose the transformation theory was adopted, it would lead to this: that pregnancy had the marvellous power of transforming every disease it might be associated with, not into so many other diseases, but all into one and the same disease—puerperal fever. Such conclusions could only be admitted after the strongest proofs, and not on the mere assertion of anyone. Puerperal fever had been correctly compared to surgical fever, seeing that they both arose from the same cause—purulent infection of the general system. In primiparæ the uterus often contracted very languidly; and when it did contract well, and expel both the fœtus and the placenta, it was far from uncommon for it to become gradually relaxed; and it was this relaxation which caused the sinuses to become so patent as to admit of purulent infection through them, and which required therefore to be so much guarded against. There could be little doubt that many diseases which had nothing to do with the pregnant state were included under the term "puerperal fever;" also that purulent infection of the general system through the previous sinuses gave rise to one of the most dangerous affections following parturition. But whether these propositions included all the phenomena observed in puerperal fever, or not could only be determined by the careful clinical observation of facts, and equally careful examinations after death.

## PATHOLOGICAL SOCIETY OF LONDON.

MR. W. ADAMS, V.P., in the Chair.

**MR. BRUCE** read the report of a committee on a Cretified Tumour of the Back removed by Sir Wm. Fergusson, and exhibited at the last meeting by Dr. Trimen.

A report by Dr. Marcet upon Chylous Fluid derived from the Peritoneum, exhibited by Dr. Wilks, was also read.

Dr. Bastian exhibited specimens of Lung and Liver showing the early stage of Fibroid Degeneration. He regarded the grey granulation as the type of tubercle; and the early stage of fibroid showed microscopic characters not distinguishable from those of grey granulation. Although the elements were alike, the arrangement was different in the two structures. They differed also in their origin, the one originating in tubercle, and the other being of much more local origin. Dr. Bastian would regard the fibroid change as one neither of inflammation nor degeneration, but rather as a substitution of a new tissue functionally inert.

Mr. W. J. Smith exhibited the following:—1. Microscopic specimens of a Strumous Gland, of the size of a hen's egg, removed by Mr. Gay from the axilla of a healthy man forty-eight years of age, showing, first, increase of the fibrous tissue of the tradeculæ; secondly, substitution of large nucleated polymorphous cells for the proper lymph-corpuscles; thirdly, diminution of vascularity; and fourthly, fatty degeneration of the abnormal cells and the connective-tissue corpuscles of the trabeculæ.—2. Microscopic specimens from an Enlarged Tonsil, showing the new tissue to be composed of closely packed Malpighian follicles, in the interior of which can be seen an abundance of fine bloodvessels.—3. An Epidermal Cyst containing fat and hair, not congenital, removed from the chin of a man forty years of age. The hairs were rolled up round little masses of fat, and resembled in general appearance those of the man's beard. Many, however, presented, under the microscope, an unusual and fringed appearance from loosening of their cuticle.

Dr. Wilson Fox exhibited a Heart from a case of Cyanosis in a child aged four years, who up to nine months was in perfect health; but then, after an attack of bronchitis, the blueness came on. There was a considerable bulge of the chest-wall in the præcordial region, and a loud murmur. There was an open foramen ovale, and also a communication between the ventricles. The pulmonary artery was nearly closed. Dr. Fox thought the patent foramen was in the main a congenital affection, but the ventricular opening was partly due to inflammation.

Mr. Moore exhibited, through the Secretary, a case of Recurrent Cancer of the Breast, after treatment by the injection of acetic acid. The breast had been removed, and nodules which showed themselves in the cicatrix were treated with the acid, and disappeared. On a recurrence of the disease Mr. Moore excised the whole cicatrix, which was exhibited, and referred to the Committee on Morbid Growths.

Mr. W. Adams brought forward a living specimen of Progressive Paralysis with Hypertrophy of Muscle in a boy, who was in an early stage of the disease. He alluded to a case of Dr. Hillier's, and to a second case under his own care, showing more advanced stages. The boy, though apparently muscular, was found to be weak in the legs, and was unable to rise from his seat or stand. The disease was progressive, and would probably end in death. The patient has a brother in a more advanced stage.

Dr. Hillier said his patient was a boy between ten and eleven, who never walked well, and could not run. A tendency to draw up the heel had been observed; and now he cannot walk at all, and is becoming weak in the arms. The hypertrophy of muscle was not considerable.

Dr. Meryon said he had been the first to describe a form of local paralysis dependent upon rupture of the sarcolemma of muscle without fatty degeneration. The disease was of a centrifugal character, beginning in the thighs, and then affecting the legs, afterwards attacking the upper extremity. He referred to patients under his care, and whom he had exhibited to the Medical and Chirurgical Society.

Mr. Lockhart Clarke was strongly disposed to think that in these cases there was some central nervous lesion. He regarded the post-mortems of early cases as unsatisfactory; and, in the cases which he had examined, had found undoubted evidences of disintegration of the spinal cord. He considered the cases of Dr. Duchenne quite distinct from those of Dr. Meryon.

Dr. Schulhof remarked upon the difference of symptoms in the two diseases as regards pain.

Mr. Nunn made a few remarks upon the arterial supply of the affected limbs.

Dr. Uvedale West narrated some particulars of the case of a child of his own who had suffered from the disease.

Sir D. Gibb exhibited some specimens of diseased Suprarenal Capsules from a patient who had discoloration of the skin. Sir D. Gibb also showed a case of Tumour springing from the Hyoid Bone, dislocating the epiglottis, and producing suffocation, from a lad of fourteen, which he concluded to be of cancerous nature.

Mr. Christopher Heath exhibited a large Osteosarcoma of the Lower Jaw, which he had removed from a patient who unfortunately sank from exhaustion on the sixth day. He called attention to the fact that the tumour had sprung from the interior of the bone, and was of a benign character, and that the inner lamella of the jaw was perfectly smooth and entire, as was generally the case in tumours of the kind. The vessels of the neck were never involved in such cases, and it was only to be regretted that the patient had not been submitted to an operation at an earlier date. The tumour weighed 4 lb. 6 oz., and was one of the largest of the kind. Mr. Heath showed drawings of the patient, and a wax model of the tumour.

Mr. F. Mason exhibited a specimen of Ruptured Muscle from a case of Tetanus induced by a hair-pin driven beneath the scalp.

Dr. Kelly showed a specimen of Diseased Fallopian Tubes, from a woman who had not menstruated for some time. The tubes were closed at each extremity, and the cysts were of the size of an orange. The patient died of disease unconnected with the parts exhibited.

A report was read from the Committee on Morbid Growths on Mr. Nunn's case of disease of the bladder. No cancerous elements were discovered about the ulceration; but there was no positive proof that the disease did not originate in a villous or papillary growth.

The report on Dr. Ogle's case of Spinal Disease was read by Dr. Dickinson, who stated that it was not malignant disease, but an example of simple caries. Some of the intervertebral cartilages had disappeared, the bone was denuded, and purulent formation existed about this diseased condition.

Dr. Greenhow and Dr. Wilks reported that the Suprarenal Capsules submitted to their examination were free from disease.

Mr. Soelberg Wells exhibited an extremely interesting case of Tubercle in the Choroid, diagnosed during life by means of the ophthalmoscope. He believed this was the first case in England in which tubercle had been recognised in the choroid, either before or after death. The patient was a girl eight years old, who had been admitted into King's College Hospital, under the care of Dr. Garrod, with acute miliary tubercle. Mr. Soelberg Wells had occasion to examine the eyes, and with the ophthalmoscope found the refracting media to be clear, the retina and optic nerve healthy, but the retinal veins slightly dilated. In the choroid of both eyes were seen a number of round, slightly prominent, greyish-white nodules scattered about the fundus, chiefly in the vicinity of the optic nerve, but especially in the region of the yellow spot. Mr. Wells considered they were tubercles for the following reasons:—(1) The perfectly healthy state of the optic nerve and retina excluding the idea of inflammation. (2) In some instances a retinal vessel could be distinctly seen to pass over a nodule, but no parallax could be made out. (3) The peculiar circumscribed, rounded, and slightly prominent condition of the nodules, and the fact that the epithelium was only *pushed aside* by the nodules; the absence of pigment deposits, and the thinned epithelium passing over the nodules into the normal layers. (4) The entire absence of inflammatory symptoms. At the post-mortem, tubercle was found in the lungs, kidneys, spleen-capsule, and pia mater of the left hemisphere of the brain. Mr. Wells gave the results of the microscopic examination; and pointed out that a valuable diagnostic mark might possibly be found in the condition of the eye in doubtful cases of acute tuberculisation.

Dr. Moxon exhibited a case of Thrombosis of the Pulmonary Artery in connexion with "Phlebitis" of the Saphena Vein of the Left Thigh, inducing sudden death during convalescence from typhoid fever.

Dr. Murchison asked some anatomist to explain the almost universal affection of the left extremity in cases of thrombosis of the lower limb.

Dr. Moxon's second specimen consisted of Two Kidneys removed from a subject of Bright's disease. One of the kidneys was large and white, weighing 6½ ounces; the other was small and apparently healthy, but at the lower part were small ecchymoses. The renal artery was found to be occluded by a clot of old standing. Dr. Moxon suggested that the arrest of blood might have led to the recovery from disease of the apparently healthy kidney.

Mr. T. Bryant referred to the case as illustrating the practice of cutting off the supply of blood from local inflammations, which is courting special notice at the present time; and adduced several arguments in favor of this view, as applicable to Dr. Moxon's case.

Mr. Simon remarked that the conditions were open to a totally different explanation. The larger kidney was originally as healthy as the other. The embolism of the arteries of the smaller had led to the larger one being overworked, which thus fell into disease as a consequence.

Mr. Wagstaff exhibited Renal Calculi composed of carbonate of lime.

Mr. Spencer Watson sent round the room the Bony Tumour removed by Sir W. Fergusson very recently from the orbit of a man in King's College Hospital. It consisted of two parts: the outer one very dense and ivory-like; the inner being more like osseous tissue, somewhat denser than that of the lower end of the femur. A line of demarcation existed between the two layers formed by ossifying cartilage. The growth was referred to the Committee on Morbid Growths.

Dr. Fowler and Dr. Fuller exhibited a Heart in a state of Fibroid Degeneration, which was taken from a man who died suddenly. The specimen was referred to Dr. Wilks and Dr. Bastain.

Dr. Hillier brought to the Society a boy who exhibited symptoms of Muscular Atrophy similar to those present in the cases brought forward by Mr. Lockhart Clarke at a former meeting.

Mr. W. Adams stated that Dr. Richardson had examined the urine in two cases under his care, and found a large quantity of muscle-sugar (mosite).

Dr. Hillier exhibited a second case, in which loss of substance was noticeable in the muscles of several parts of the body, in connexion with thinning of the skin—in the left buttock, the left forearm, over the deltoid, and latterly about the right arm and leg.

Mr. Power, referring to the quivering of the muscles which existed in one of Dr. Hillier's cases, and which is common after section of nerves, observed that two explanations were possible: either that degeneration proceeded along the nerve to the periphery, or that the muscle expended its vitality in this way. This quivering had been especially seen by Schiff and Müller in sections of the nerves of the tongue.

Mr. T. Bryant showed a Tumour of the Scalp, from a boy sixteen years old, which had been growing for four years, and appeared as a semi-fluctuating and nodulated tumour, found to be closely attached to the scalp.

Dr. Moxon stated that the tumour had a very peculiar structure, seeming to be made up of a deep part, like coagulated blood, and of an outside portion like a bag of worms. This appeared to consist of exaggerated capillary loops, with jelly-like material filling up the interstices.

It was referred to the Committee on Morbid Growths.

Mr. Bryant next exhibited a case of Tumour of the Leg growing in the Fibula at its lower end and of a fibro-plastic nature.

Dr. Phillips brought before the Society two Malformed Fœtuses.

# Editorial.

## PROFESSIONAL PUFFING.

The recent painful controversy at the Hospital for Diseases of the Chest has, we are glad to find not been unproductive of benefit in a professional point of view. The important point which has been distilled from the dispute between the medical officers of the institution in question is this: that the profession regard with grave displeasure the appearance of the names of medical men in connexion with the trade advertisements of chemists and druggists. We hope it will give practical expression to the feeling in the future, by its attitude towards offenders against professional propriety, that Medicine has loftier aims than the successful barter of its drugs, and the consequent personal worldly advancement of its members. The system of indirect advertising on the part of some members of the medical body is extensive and cunningly devised, and it enables those who practise it to approach as closely as possible without open offence to the boundary line where decency shades off into what is clearly a violation of honesty and gentlemanlike feeling. In order that the puff indirect may be suppressed, it is necessary that medical practitioners should at once cease to bestow testimonials at the request of importunate instrument-makers, druggists, bakers vendors of special kinds of food, and medicine. There are plenty of proper opportunities to give full publicity to anything that is worth notice; and no man can conscientiously say that any work or agency of value or utility is likely to be disregarded by his professional brethren in the present day. In nine cases out of ten such testimonials are merely written that the giver of them may find his name thrust prominently before the public as an authority. Self-laudation is always indiscreet; and praise is often so thickly laid on, or the paragraphs are worded in such gross defiance of fact or logic, it may be unwittingly, to suit the main purpose in view, and the real object of the writer is so thinly veiled, that no man of common sense fails to see the double puff. In many instances the writer insults all the members of a respectable class save the one whom he wishes to elevate, by ascribing to him a superiority which does not exist.

Another question which ought to be considered by the profession is as to the advisability of advertising medical works in the columns of the daily journals. For example, let our readers take the newspapers of any day when books on Homœpathy, Hydropathy, Diseases of the Generative Organs, Brain and Stomach, Dentistry, Taking Cold, the Cure of Cancer, &c., are advertised, and he will see in the same column books by hospital physicians and other respected practitioners. Is this desirable? We think it is not. In the first place, it sets an example to men who have nothing of any value to write about to concoct a book simply for the purpose of advertising their names to the public. Secondly, it makes men guilty of the meanness of committing an act which they know to be objectionable, under the pretence of only doing that which does not offend any positive professional rule. And then, thirdly, it leads to the starting of those miserable infirmaries, dispensaries, hospitals, &c., in little back streets, which are of no benefit to the poor, and which are solely set going that the illustrious founder may parade his name in print as Physician or Surgeon to the Infirmary for Consumption, or Cancer, or Diseases of the Navel, or anything else that an exuberant fancy may suggest.

We suppose that it will be granted by all that it is, to say the least, derogatory to the dignity of our profession to resort directly to public advertisements. But the question arises, Is it not equally mischievous and disparaging to do so in an indirect manner? Moreover, what is the essential difference between advertising out of the usual course a book on Diseases of the Umbilicus and their Cure, with complimentary quotations from several medical journals, and publishing a card—"If your navel is out of order, consult Dr. Timkins, who has paid particular attention to diseases of that part"? For it is scarcely credible that anyone can be so simple as to think that medical books are advertised in non-professional papers because it leads to the sale of these works. If such an amiable being exists, we can inform him that he is mistaken. In proof, let him notice that as a general rule, the books advertised in the London daily papers are from the pens of London practitioners. Country men, Ediburgh men, Dublin men, all write very valuable books, which are advertised in the medical journals, and which their authors are anxious should be read by physicians and surgeons in all parts of the world. Yet they seldom, or we may say never, compared with their metropolitan brethren, have recourse to the London public papers. The real object of the advertisements, then, is to bring grist to the mill in the shape of patients.

At the commencement of the present century, when the art of puffing was gradually becoming developed, men not over particular were in the habit of writing medical treatises for distribution amongst the circulating libraries. Percival, in his "Medical Ethics," well describes such works. After speaking of an author who deemed himself infallible in liver diseases, he says: "Treatises of this kind are not confined to one species, but are a multiplying and various race, of which diet, digestion, the stomach, and mineral waters, form the principal themes. They supersede the necessity of sticking a bill, whilst they comply with a taste for perpetrating that offence." Upwards of sixty years have elapsed since this passage was written, but it is greatly to be feared that it is as applicable now as it was then.

The important question remains as to the remedy for the evils we have been considering. Three may be suggested. On the present occasion, however, we shall only refer to one, and it consists of an appeal to the authors themselves. Let these gentlemen seriously consider whether their attempts to attract the attention of the public are not calculated to lower that high tone which should be characteristic of the noble profession of Medicine in the present day. The man who writes a book because he honestly believes that he can make his brother practitioners better physicians and surgeons than they would otherwise be is a great benefactor. The individual who publishes simply that he may advertise his name is a mere trader. And not only should every medical practitioner keep out of the latter class, but he ought so to regulate his conduct that he may not even be suspected of belonging to it.

## TUBERCLE.

The doctrines of M. Villemin relative to the specificity (*la spécificité*) and inoculability of tubercle continue to command the attention of the Academy of Medicine and of the French medical press. It would be unreasonable to expect such doctrines to be readily accepted. They involve so many fine points of pathological anatomy and physiology, and they furthermore involve such an alteration of our old-fashioned notions on the nature and causes of tuberculosis, that some slowness in the reception of them is most reasonsonable and commendable. To almost disregard hereditary influence, and to be little more respectful of the diathetic peculiarities of the patient, is a bold innovation of teaching on this subject. But these are only the negative features of the new doctrines. The positive features are not less revoluntary. To find the pathological allies of tubercle in the granulations met with in the lungs of glandered horses or in certain syphilitic deposits (*les gommes syphilitiques*) is a bold assertion of anatomical analogies. It is, however, only due to M. Villemin to say that he does not unduly magnify the importance of the mere anatomical or morphological elements of tubercle. He seems to think, as many other observers do, that between mere inflammatory exudation and tubercle there is every gradation of material. He is very explicit in denying that there is anything specific in the morphological constitution of tubercle. Thus he says, the morphological elements which compose tubercle are the same as those of lymph, and as those due to the proliferation of conjunctive corpuscles. "La granulation tuberculeuse ne serait donc qu'une modification du tissu connectif au milieu duquel elle s'est développée." The proper characters of tubercle—its specificity—are to be studied in its evolutions. The morphological relations of tubercle to the deposits in glanders and syphilis may seem to our readers remote and irrelevant. But it was by the comparative study of different morbid products in the light of recent general principles of anatomy and physiology that M. Villemin was led to practise the innoculation of tubercle, expecting its multiplication. He has just published a book on the subject,* in which he expounds his doctrine and refutes objections to it. A copious digest of the contents and arguments of this book will be found in recent numbers of the *Gazette des Hôpitaux*, to which we are indebted. The whole question is yet in its very infancy. But whether we regard the philosophical method by which M. Villemin was led to his experiments, or the striking conclusions to which he has been led by his experiments, we must regard the idea of the inoculability of tubercle and the zymotic theory of phthisis as among the most interesting and urgent hypotheses of recent medical science. While admitting the specificity of the phenomena resulting in animals from inoculation of tubercle—the multiplication of the inoculated substance, with all the signs "of a general infection of the organism, and death from marasmus,"—and impressed with the fact that two observers (M. Villemin and Dr. Budd), from different and perfectly independent points of view, have arrived at a zymotic theory of tuberculosis, we cannot but confess the excessive difficulty of reconciling with this theory clinical facts touching the origin and progress of phthisis as we see it in daily experience. Still, clinical observation is apt to be narrow, and to lose sight of the primary facts of disease. So we shall keep our minds open to evidence from all quarters; and in regard to the inoculability of tubercle, we shall remember the observation of Villemin—"Whatever may be the explanation we give of the fact, we must resign ourselves to admit it, and to range tuberculosis among the affections which we attribute to the existence of a morbid germ capable of multiplying itself in the economy, and that, for this reason, we call zymotic maladies."

# Medical Annotations.

"Ne quid nimis."

## THE DESTRUCTIVE POWER OF EXPLOSIVE SUBSTANCES.

A CONSIDERABLE amount of alarm has been produced in the public mind by the circumstances under which two terrific explosions have recently occurred, involving much loss of life and injury to persons and property. One of these explosions has been traced to the treasonable designs of Fenian conspirators; the other, which has just occurred at Newcastle, was the result of an accident; but both are equally calculated to induce the apprehension of danger, which it appears may arise either from the designs of men acting recklessly under the influence of strong political feelings, or from the conduct, equally reckless although less wicked, of men seeking to advance their commercial interests.

The calamitous results of these explosions have caused attention to be directed to the nature of explosive substances, and to the extent of the destructive power which such substances may be capable of instantly calling into action when subjected to the influence of very slight chemical disturbance.

The action of explosive substances is due to a sudden expansion, sometimes followed by a collapse, occasioned by a chemical change in the materials of which the substance is composed. Explosive substances, which may be either solid, liquid, or gaseous, sometimes consist of mere mixtures of two or more ingredients, which, although not in the first instance chemically combined, are capable of yielding chemical compounds; and the explosion arises from the sudden production of such compounds, chiefly in the form of gas, which, having a volume vastly greater than that of the original substance, causes a violent concussion of the atmosphere. It is thus that gunpowder, consisting of charcoal, sulphur, and nitre, mechanically mixed together, on the application of fire to any part of it undergoes a complete chemical change, in which large volumes of gas are produced. Gun-cotton which has been proposed as a substitute for gunpowder differs from it in being already a definite chemical compound. But it is a compound of an unstable nature which is easily broken up, and other more stable but gaseous compounds are then produced. It is the difference in volume between the solid gun-cotton and the gases resulting from its sudden decomposition under the influence of heat that gives to it its explosive power. Gunpowder and gun-cotton nearly resemble each other in the nature and extent of their explosive power. They do not belong to the most dangerous class of explosive substances, and their applicability for the purposes for which they are generally used, and to which their names refer, depends upon the fact that the explosion is not so sudden and violent as it is in other explosive substances, such as fulminating mercury. This latter substance could not be used in a gun as gunpowder is without its destroying the gun by the effect of the suddenness and violence of the explosion.

Nitro-glycerine, the substance which caused the recent explosion at Newcastle, differs from the foregoing substances in being a liquid. Like gun-cotton, it is a definite chemical compound, not a mere mixture of ingredients. It also resembles gun-cotton in chemical constitution, and in the manner in which it is produced. The one is made by the action of strong nitric acid on cotton wool, and the other by the similar action of nitric acid on glycerine. The explosive power of nitro-glycerine is said to be about ten times as great as that of gunpowder, on which account it has been extensively used in mining operations. It has been manufactured near Hamburgh, under the name of "Nobel's patent blasting oil." It is also known by the name of "glonoin oil." About two years ago, a quantity of it was exported from Liverpool to Colon, at which port it was being landed from the steamer, when a dreadful explosion occurred, which destroyed the ship, did extensive damage to the jetty at which the ship was unloading, and to many houses in the town, and killed upwards of forty persons. The immediate cause of its explosion at Colon was not clearly traced; but as it occurred during the removal of the tin cases containing it from the hold of the vessel, and as its explosion is usually effected by percussion, as for instance by striking with a hammer a piece of rag or paper wetted with it, the disaster probably resulted from some similar cause, as also, most probably, did the recent explosion at Newcastle.

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* Etudes sur la Tuberculose. Preuves Rationelles Expérimentales de sa Spécificité et de son Inoculabilité. Par J. A. Villemin, Professeur Agrégé à l'Ecole Impériale du Val de Grâce. Un tome, en 8vo. Paris: Chez J. B. Baillière et Fils. 1868.

This dangerous substance is said to have been largely used for mining purposes in North Wales; and as the only place at which it is known to be made is in Germany, it is obvious that in conveying it from one place to another by ship and rail, life and property must be jeopardised to a fearful extent. An Act of Parliament was passed last year for the express purpose of prohibiting its being sent by any public conveyance, or stored in any warehouse, without due notice being given of its dangerous properties. The circumstances under which it has been stored in the centre of a populous town will, of course, become subject-matter for judicial investigation.

The terror which has been caused by the explosion at Clerkenwell has occasioned some false alarms and exaggerated fears to be entertained by the public with reference to impending dangers from similar causes. Thus, a report was current a few days ago that a barrel of gunpowder had been found at one of our gas works, which had been placed there, it was said, for the purpose of causing the explosion of the gas in the great gasometers. These fears may be allayed by the simple statement that the gas, in the state in which it is stored at the works and supplied to our houses, is not explosive; and that it is only when it is mixed with a large proportion of atmospheric air or oxygen that it becomes so.

In some instances attempts have been made to set fire to buildings by the use of a composition called "Greek fire." This is a solution of phosphorus in sulphide of carbon, both highly combustible substances, and one of them very volatile. When the mixture is exposed to the air, the sulphide of carbon quickly passes off in vapor, and leaves the phosphorus in such a finely-divided state, that in contact with the oxygen of the air it ignites spontaneously, burning with its characteristic energy, and thus communicating ignition to any combustible matter with which it may come in contact. A small bottle of Greek fire thrown into a house, as was attempted in Grosvenor-square a few days ago, might be sufficient to set the building on fire.

### MEDICAL EVIDENCE IN RAILWAY CASES.

NOTHING has a greater tendency in the public mind to weaken the confidence in Medicine as an exact science than the medical evidence given at trials for compensation for railway injuries. The newspapers of the last few days abound with reports of these cases. Without a single exception, medical testimony was adduced on the part of the plaintiff and defendent of a most contradictory character: this, too, by men of equal standing and eminence in the profession. The witness on the side of the plaintiff invariably regarded the injuries sustained as of a very serious character; whilst the witness for the defendant as invariably appeared to regard them as far less important, and less permanent in their effects. Accustomed as judge and jury are to these discrepancies, they must sometimes be utterly bewildered as to the real extent of the injuries, the compensation for which they are called upon to assess. It must be admitted that this is a most unsatisfactory mode of settling such questions: whilst in some cases the damages awarded appeared to be excessive, in other instances they were wholly inadequate. Trials of this kind rarely involve any important questions of law, the railway directors usually admitting their liability. The real issue to be determined is the amount of injury received; and a host of medical witnesses is subpœnaed by each party to prove his case. The interests of the public and the profession are deeply involved in this matter; and we shall be glad when a more satisfactory mode of arbitrating these differences is established. A great number of cases are annually settled without resort to the law; but the number of those which are submitted to a jury is alarmingly on the increase. For this in some cases the directors are at fault; in others the blame must be attributed to the plaintiff. But is the remedy for this state of things a difficult one? Certainly not. In all cases in which a legal question is involved—and, as we have said, they are very few,—by all means let them be decided in "the solemn form of law;" but when the railway company admits its liability, let the questions of injury and compensation be settled by a medical tribunal. Two or three competent practitioners appointed by Government as arbitrators would be able satisfactorily to test the evidence of medical witness, and arrive, in almost every instance we believe, at a fair conclusion on the matter at issue. That this must be the ultimate result we have little doubt; and it does appear somewhat remarkable that the railway interest, which is so largely represented in both Houses of Parliament, has not introduced a measure to carry out so wholesome and so much needed a reform.

### DUMB MEN'S SPEECH.

WE beg to direct the attention of those of our readers who are interested in the care and education of deaf-mutes to a paper under the above title in the current number of the *Cornhill Magazine*. In it the writer gives an account of a visit paid by him to an institution in Brussels, at which the herculean task of teaching the dumb to speak —literally, and not by the manuel alphabet,—is carried on, with a success which is little less than miraculous.

The principle upon which this practice is based is the utilisation of the imitative faculty which is implanted in all human beings, even the least cultivated. By patiently pronouncing emphatically again and again the several rudimentary sounds of which speech is composed before the attentive *eyes* of the deaf-mute, the teacher succeeds at length in inducing an imitation of the movements of the lips and throat which produce analogous sounds. Thus an alphabet is built up, syllables are put together, and at length the advanced pupil is able, not only to express his thoughts, but to enter into conversation so long as he can see the lips of his interrogator. Of course the amount of labor and patience expended in effecting these results is stupendous, and, as the writer remarks, were it not for the religious element which is the animating cause of their benevolent efforts, the teachers could hardly have failed to throw up their work in despair long since.

Not the eye only is relied upon for the conveyance of the necessary instruction, for when the eye fails, as it must sometimes necessarily do, to appreciate those delicate movements of the larynx and tongue upon which so many sounds depend, the finger of the pupil is applied to the throat or mouth of the teacher, and thus the necessary information is conveyed, and the move immediately imitated.

The diagram-board, pictures, and various objects are of course useful adjuncts when the first difficulties are got over; and the more advanced pupils are able not only to converse freely in French, which they understood, but, without knowing one word of English, were able to repeat words in that language after their visitor by simply watching his mouth.

It is needless for us to insist upon the vast difference between the position of one who has to resort to his fingers for the conveyance of ideas, and one who is able to express his thoughts in language, and to read the thoughts of others on their lips. There is we know at present a religious service organised for the deaf and dumb in London, carried on by the hands of the officiating minister. How much more impressive would such instruction be if the mouth of the preacher were to speak to the eyes and understandings, though not to the ears, of his audience.

### THE ETHICS OF SPECIALISM.

THE American Medical Association has been considering a very important subject, whether regarded medically or morally—the ethics of specialties. Those of our readers who study the present tendency in the profession to the excessive development of specialism will be apt to think that the British Medical Association might do worse than take this subject into its serious consideration, or do as the American Association did—refer the matter to a committee. We feel sure that such a committee, empowered to take evidence on the moral operation of specialties, would accumulate facts of great interest to the profession at large. The American Association's committee, was a small one, composed of five or six persons. They presented two reports—one of a majority, the other of a single dissentient. The drift of the report of the majority was to this effect, that exclusive specialties were to be disapproved as having the following bad tendencies: to narrowness of view; to magnify the diseases included in the specialty; to disparage the general practitioner, who must necessarily treat the bulk of the diseases of mankind. They consider the specialist under temptation to the employment of undue measures to gain popular reputation and to charge unduly large fees. At the same time, they admit the advantages claimed for exclusive specialism: minuteness and wideness of observation—within the limits of the specialty of course,—from which come skill in diagnosis and operation. They think that all the advantages may be secured and all the disadvantages avoided by what they call a partial specialism. They would have men begin as general practitioners, attending to their specialty as inclination suggests and opportunity offers; and thus skill and extent of practice would grow together. The fact that any man has special skill should be left to be discovered by ordinary and not by extraordinary means. Especially they disapprove of all advertising, on the ground that the public cannot judge of the character of skill from an advertisement.

Experience of specialism in England will not suggest a very different verdict on its tendencies from that given by the American Medical Association. We have heard of a uterine specialist so impressed with the specialty of an abrasion of the cervix uteri in a pregnant lady who consulted him, that he urged the importance of her being attended in her confinement, not by her own trusted medical adviser but by himself.

It would be simply foolish, however, to ignore the tendency of things, and in the medical profession this is towards a greater or less degree of specialism in practice. Something may be done to regulate this tendency of modern practice, and something to check it. In the way of regulation we should narrowly watch and severely censure the men who magnify their narrow specialty at the expense of the great profession to which it owes its existence, and but for the general leaning of which it would have no scientific character. But the great wisdom of the profession will be shown in the general practitioner appropriating to his own use more and more of the special knowledge which accrues from the more numerous and refined means of investigation which are taught, or should be taught, in every hospital. The idea of the American committee is a sound one—a partial specialism based upon general practice. The only specific against the extension of specialism is, that the general practitioner himself shall be more special in his knowledge and in his resources. And the improved status and the education of a general practitioner would enable him to compete successfully with "specialists," who have been, unconsciously no doubt, the promoters of a system which, if it be not quackery, is liable to be regarded as such by the thinking portion of our population.

### TYPHUS FEVER IN WARM CLIMATES.

It was generally considered that typhus fever was confined within certain geographical limits: that it was a disease of cold and temperate regions, and did not prevail in tropical climes—in India, for example. Experience of late years has shown the erroneousness of this view. The etiology of typhus is pretty well known; and where the conditions necessary to its generation and prevalence exist, whether in Great Britain or India, there the disease makes its appearance. Typhus is a disease of winter, because at that season, as there is less work in the country districts, the inhabitants congregate in the neighboring towns; and this, together with the cold and famine, causes the overcrowding, defective ventilation, and other insanitary evils, which are the main factors to be recognised in the development and progress of all epidemics, and particularly of typhus. We know, on the authority of Dr. Marston, that typhoid fever is common enough in the Mediterranean; but he expressly states that he did not meet with typhus there, and that when some of the crew belonging to the *Schah Gehald* were landed at Malta suffering from that disease, and typhus was therefore imported, it spread scarcely at all. The above ship, it may be remembered, was a typhus-stricken vessel which attained an unenviable notoriety by carrying typhus into the Liverpool bath establishment and infirmary; and the crew of the *Schab Gehald*, being subsequently shipped on board a Liverpool steamer, infected persons on board the steamer, who imported typhus into Malta subsequently.

In 1860 both the Agra and Meerut central prisons were attacked with a very malignant fever, and since that time a contagious fever has continued to prevail over a wide extent of country in India, and particularly amongst the prisoners confined in different gaols. The disease was recognised by Dr. Walker, the superintendent of the Agra central prison, and by other observers, as true typhus; but there was no eruption discoverable on the skin. We have been informed, however, of the occurrence of a case of typhus fever in the Madras Presidency in which there were purple spots amongst the other symptoms, and the medical attendent considered the disease in all respects identical with that of typhus, such as he had witnessed in Ireland. In 1865 no less than 349 deaths from fever occurred in twelve gaols in the Bengal Presidency; and in 1866, 200 prisoners were carried off in the Lucknow central district gaol in about three months. Great vigilance has been exercised in carrying out sanitary precautions against the spread of this disease by contagion; a rigid quarantine has been adopted to prevent the importation of the fever poison into healthy districts, and sanitary measures of various kinds have been effected, and generally with great success.

## THE CHARITY OF OUTCASTS.

Among many painful and some ludicrous facts which were elicited during the Farnham Workhouse inquiry, there was one observation made, by more than one witness, which is full of the truest pathos. In the dreary and wretched foul ward which has been so often described, there are grouped a fluctuating number of unfortunate women of the lowest class, nearly all of whom have been followers of the camp, and whose mental and physical degradation might be thought to be as complete as any that can be reached except by the worst criminals. The Pharisees of society would say so; but they would be wrong. One witness declared that the tender, loving care with which these poor outcasts helped each other —those who were a little stronger nursing and comforting, in their rude fasion, the more seriously sick—could not be surpassed by the devotion of the best women. Even the tragic death of Rose Cumber, who was killed by the shock of having her bedclothes set on fire when she was already in a state of prostration from disease, really shows the compassionate, though ignorant, kindness of these poor girls. The shocking inadequacy of the nursing staff left these unfortunates with no attendant skilled nurse to advise them, nor any such within reach, unless they either relied on the bell, or went out of the wards into the cold night air to find the one paid nurse. So they tried to comfort the suffering creature, who they knew had not many days to live, by putting a heated brick to her chilled feet; and it was their ignorant zeal which over-did the heating, and caused the fatal catastrophe.

Nor is the story of the Farnham foul ward the only proof, by many, which we could give of the generous kindness of fallen women to their sick or impoverished companions. The experience of most hospital and dispensary doctors will furnish them with scores of reminiscences which would tell the same story. Cannot our clergy, our philosophers, our political economists, draw out some practical lesson from these strange and pathetic facts? Is it really true that among all the kind and brave English hearts who dare face any labor and the contact with any misery to help and save the wretched, there is no one to organise some plan by which the warm hearts of many fallen girls might be enlisted in work of their own reformation and rescue? Surely the profession of nursing is the very one to which they might be most usefully trained; and if it proved to be necessary that the State should bear a part of the expense of this training, it would certainly be as useful an expenditure of the public money as could possibly be made.

## "NO THOROUGHFARE."

The little Christmas book by Charles Dickens and Wilkie Collins, which has just appeared with the above title, contains a character which is of some psychological interest. Walter Wilding, a foundling, who has come into a good wine-merchant's business through his supposed mother, displays an eccentricity of conduct which we apprehend will puzzle, if it do not even annoy, the general reader, who will be apt to call it unnatural and absurd. Mr. Wilding is described as "an innocent, open-speaking, unused-looking man, with a remarkably pink and white complexion, and a figure much too bulky for so young a man, though of a good statue……An extremely communicative man; a man with whom loquacity was the irrestrainable outpouring of contentment and gratitude." He conceives the idea of gathering all the people in his employ, clerks, apprentices, cellarmen, porters, and "odd men," under his own roof, and forming thus a happy family, which shall eat and drink and live together in a sort of social Utopia. Arriving unexpectedly at the intelligence that he is not really the son of the woman he supposed to be his mother, he devotes himself to a Quixotic search after the real Walter Wilding, in order to give up to him property to which he thinks himself no longer entitled, and of which he considers he has robbed the rightful heir. Having failed in his search, and bequeathed the continuance of the disagreeable task to his executors, he dies. A character this of some feebleness, and one which, notwithstanding the high tone of morality suggested by it, will appeal to the sympathies of but few readers. And yet the art of the renowned authors is well evidenced by this character of Walter Wilding. We find it described that in the middle of a dialogue he will complain of a singing in his head which has suddenly come on, and his face is seen to be excessively pink, or he will lose himself in the middle of a sentence, and make odd jumbles of words now and then. As time goes on, these symptoms grow more frequent and worse. "And now there began to creep over him a cloudy consciousness of often-recurring confusion in the head. He would unaccountably lose, sometimes, whole hours, sometimes a whole day and night." And gradually he arrives at the conclusion that he must have been "subject to fits." The character is an able study of epilepsy, and especially of that form of it which the French call "*petit mal*," and which so often produces dementia. Walter Wilding was epileptic, and somewhat demented. This is the key to his character. Rough hands would have made a sad mess in describing this very curious mental and physical condition. In the present instance, so delicate is the touch, that the character thus drawn, even if it be rather wanting, perhaps, in general interest, is a rare example of artistic ability.

### MEDICAL REGISTRATION IN NEW ZEALAND.

We learn from a correspondent in New Zealand that a Medical Registration Act has just been passed there, containing a clause empowering all unqualified men who have practiced medicine in that colony since 1857 to register. We are not insensible to the claims of men who, by the force of circumstances, and perhaps with some rough knowledge of medicine, found themselves discharging medical functions in a remote colony where duly qualified men were difficult to be had. Their case is somewhat comparable to that of persons practising in England before 1815, and who, on the passing of our Medical Act, without any qualification, were allowed to register. But while allowing the claims of such men to some consideration, we greatly question the wisdom or the justice of their indiscriminate registration. Some discretionary powers should be given to register only such as seem to have done good service and to have had some medical education. The medical wants of New Zealand are, or soon will be, supplied by well-educated men from this country; and it is not for the interests of the colony that such men should be deterred and discouraged by a large and reckless admission of everyone who likes to say that he has been practising physic in New Zealand since 1857. We commend this point to the consideration of the Colonial Office. In any case, a distinction should be made on the register between men registered on account of their education and qualifications, and those registered merely in virtue of being in practice before 1857.

### PHYSICIANS AND APOTHECARIES.

From Philadelphia we have the news of serious disaccord between physicians and apothecaries. The former accuse the latter of extending their operations beyond their legitimate scope. They assert that the apothecaries have in many instances degraded themselves by vending confectionary, stationery, perfumery, and drams, in addition to physic; and further, that they have taken upon themselves to prescribe as well as dispense medicine. Again, it is complained of that many apothecaries will re-dispense prescriptions without the assent of the prescriber, bring undue influence to bear in recommending particular physicians, change the ingredients of prescriptions, and appropriate and vend privately or by advertisement prescriptions entrusted for dispensing. This is a formidable catalogue of charges, and the offences are difficult of control, unless by a combined and unanimous action on the part of the offended.

A case has been lately attracting the attention of the public through the medium of the newspapers, in which a medical practitioner refused to give a certificate of death until his fees for attendance on the diseased had been paid. We trust that these cases are exceedingly rare. They damage the profession in the eyes of the public, and the refusal has no legal effect. The registrar, under the sanction of law, can register the death in the absence of a medical certificate. The Act is merely permissive, and, as it inaugurated an entirely new order of things with regard to registration, it could not have been made compulsory with propriety. The vast majority of the profession have on all occasions, however, assisted the Registrar-General. It is always a subject of regret when a certificate is withheld, but more particularly so when the withholding of the document is founded upon reasons of a pecuniary nature. We strongly reprobate such conduct, as it may be fraught, not only with injury to the character of the profession, but to the proper working of the Registration Act.

Dr. Grant, Deputy Inspector-General at Bermuda, has sent us the full notes of an interesting case of yellow fever treated by the sulphuric-acid bath, and in which, though the symptoms were very severe, recovery took place. The bath consists of hot water containing two drachms of strong sulphuric acid to each gallon of water. The patient remains in the bath a quarter of an hour, and is afterwards wrapped in blankets, and sponged with the same fluid as that which forms the bath night and morning. From the details given by Dr. Grant, this mode of treatment would seem to act by inducing diaphoresis, thereby lessening at the outset any febrile paroxysms. We regret we have not space to give insertion to the full details of the case.

Dr. L. Sedgwick has had his attention directed specially, of late, to the value of the sublimation process in the detection of alkaloids, and his experiments would seem to have led him to an interesting result. The remarkable properties of iodo-sulphate of quinine induced Dr. Sedgwick to attempt the production of a similar salt of other alkaloids; and he reports that by the process he adopted, and which will be described in detail in the forthcoming volume of the Transactions of the St. Andrews Medical Graduates' Association, singularly beautiful and distinctive crystals are to be obtained.

Some interesting experiments have recently been made by Dr. Jones (U.S.) in reference to the action of hydrocyanic acid upon the system. They show that prussic acid acts primarily, directly, and chiefly upon the medulla oblongata and spinal cord; and that its ability to produce sudden death is dependent on its action upon the medulla oblongata.

The *New York Medical Record* states that no less than twenty-five doctors, all of whom have practised medicine, are at present responsibly connected with the New York press.

THE New Orleans Board of Health reports that the number of deaths from yellow fever in that city in the year just passed, up to the 5th November, was 3006.

## Reviews and Notices of Books.

*Die Normale Linsenentbindung, der "Modificirten Linear-extraction" gewidmet.* Von Dr. ADOLPH WEBER, in Darmstadt.

UNDER the title of "Normal Lens Extraction" Dr. Weber has communicated a highly interesting paper to the *Archiv für Ophthalmologie*, and has advanced doctrines well worthy the attention of ophthalmic surgeons. Regarding the method of linear extraction of cataract as a great step in advance, as far as principle is concerned, on the method by flap extraction, he is yet of opinion that the sound principle is not at present thoroughly carried out. He wishes to combine an incision that shall not exceed a fourth of the circumference of the cornea, with a freedom of exit for the lens that shall render the use of traction instruments exceptional—as exceptional, to use his own phrase, as the use of forceps in labour. He aims also at a plan of section that shall reduce to a minimum the number of cases in which loss of vitreous occurs; and he seeks to leave the ciliary border of the iris intact. He thinks Von Graefe's section objectionable on account of its steepness, of the direction given to it by turning the edge of the knife forwards; and he sees in the complete iridectomy a frequent cause of complications that arise from tags of iris becoming entangled in and adherent to the angles of the wound.

As the result of various experiments, Dr. Weber arrives at the conclusion that the best section for a full-sized lens is one exactly in the margin of the cornea, and in the plane of the margin, of such dimensions that its angles shall be 9 millimetres apart when its centre gapes to the extent of 4 millimetres. All operators know that the ordinary flat lance-knife cannot be kept in the corneal margin; and Dr. Weber has designed a modification of it by which this difficulty is overcome. His knife bears a general resemblance to the bent lance-knives commonly used for scoop extractions, but differs from them in several points of detail. The triangular blade is bent at an angle of 120° to the shaft, and is 10·25 millimetres in length, so as to admit of being thrust home in an eye of which the cornea is 12 millimetres in diameter. The blade is 10 millimetres broad at a distance of 6·5 millimetres from its point; retains the same breadth for 2 millimetres further back, so as to render the external and internal corneal wounds equal in length; and then diminishes to the shaft, so as to facilitate withdrawal. The blade thus bears some resemblance in shape to the heart on playing-cards. It is also concave from side to side, the concavity looking backwards, and the curve having a radius of 10·719 millimetres. With such a knife Dr. Weber states that it is possible to make an incision that shall be in the same plane as, and wholly coincident with, the margin of the cornea. He chooses the lower, or lower and internal part of the circumference, draws out the iris with a hook and cuts off a little of the pupillary margin only, lacerates the capsule with great care and nicety, and then, by pressing back the posterior lip of the wound with the flat of a scoop, and by making a little counter pressure, at a point opposite the centre of the incision, with the forceps by which the globe is held, he finds that the lens usually glides out with great facility. For more exact details of the proceeding we must refer to the original paper.

There can be no doubt, we think, that Dr Weber has accurately stated a very important problem, and one worthy of the utmost attention from ophthalmic operators. How far his own solution of it is the best that can be furnished, time will show. But at present, taking large numbers, and taking skilled and unskilled operators together, it is questionable whether the use of traction instruments does not counterbalance the advantages of a corneal wound that is too small to gape spontaneously, or to produce sloughing from interrupted nutrition. Dr. Weber justly says that the results obtained by any one surgeon are not a trustworthy criterion of the value of his method. They are the results of the *operator* as much as of the *operation*. Hence, in estimating the danger of using traction instruments, we must not dwell too much upon the fact that some persons are able to use them without danger, but must consider their probable influence upon the success of beginners, or of surgeons who operate but seldom.

Von Graefe states that he is now able to dispense with his traction-hook in most cases; but there can be no doubt that his steep incision leaves the vitreous body with only a minimum of defence, and that his complete iridectomy is attended by the risks that Dr. Weber assigns to it. Dr. Weber states, moreover, in a post-script, that Von Graefe has himself lately abandoned the very steep incision, and modified the kind of pressure by which he promotes the exit of the lens. The subject is one on which there is still much to learn; and we commend Dr. Weber's thoughtful and suggestive paper to the careful consideration of operators.

*Handbook of the Sphygmograph; being a Guide to its Use in Clinical Research, &c.* By J. Burdon-Sanderson, M.D., F.R.S., Physician to the Hospital for Consumption, &c. 8vo, pp. 83. London: Hardwicke.

This little work has the merit of appearing in the field as the first English manual which explains with authority the scientific principles on which the use of Marey's sphygmograph in clinical medicine must be based. Dr. Sanderson, as is well known, has not been content with a mere acceptance of the principles of Marey, but has made most important physical researches into the wave-movements of fluids confined in tubes, with a view to the further elucidation of the phenomena of the pulse. The result has been that the *wave* theory of the pulse, first proposed by Weber, is given a decided victory over the *tidal* theory which was formerly, and still to a certain extent is, even by Marey, employed to explain the phenomena of pulsation. At the same time, though Dr. Sanderson can hardly be said as yet to have completely proved all his points, there are some very important modifications of the Weberian theory suggested by his experiments.

It will be seen, from what we have said, that Dr. Sanderson is no mere empiric observer; and the care with which he has investigated the purely scientific aspects of sphymography gives us more confidence in following his remarks on the clinical application of the process. We confess, however, to a wish that he had been considerably fuller on these topics. From a very praiseworthy dread of raising too high the expectations of his readers as to the diagnostic and prognostic value of the sphygmograph, he has sometimes passed over matters of real value with a too hasty and depreciating reference. However, this is a fault on the right side. That which beginners in sphygmography need, of all things, to be told just now is the fact that the instrument is no magic charm by means of which one can find out everything at once about all kinds of diseased conditions of the circulation. It can really only be considered an instrument of the same kind of value as the stethoscope and thermometer, and, like those important aids to clinical researches, it is of no use at all except to the observer who, in the first place has qualified himself to employ it without mechanical fallacy, and, secondly, is aware that its evidence must only be taken as one link of a chain.

*The Principles and Practice of Obstetric Medicine and Surgery in reference to the Process of Parturition.* With 171 Illustrations on Steel and Wood. By Francis H. Ramsbotham, M.D., Fellow of the Royal College of Physicians, &c. Fifth Edition. London: Churchill and Sons.

If we act upon the principle of passing lightly over the second edition of a book, *à fortiori* we may leave the fifth edition to speak for itself. This work is too well known either to require or to justify criticism. We shall content ourselves with an extract from the preface to the present edition.

"Being called upon to put forth a fifth reprint of this work, I have gladly undertaken the task, though confined to bed by a painful and protracted illness, supported as I am by the pleasing reflection that it must have met with the approbation of my medical brethren, considering that *eight thousand copies* have passed through the hands of the publishers since its first appearance.

"To the second, third, and fourth some considerable additions were made, including another colored steel plate and some more wood engravings. For this present edition the essay on Anæsthetics—which was rewritten for the last—has been slightly extended; a chapter on the Diagnosis of Pregnancy, also another steel plate and two woodcuts, have been added; and a great many emendations and additions have been made throughout the work, too inconsiderable, however, in themselves to merit a special enumeration."

# Correspondence.

"Audi alteram partem."

## COMPLETE DIVISION OF THE MEDIAN NERVE, WITH PRESERVATION OF SENSIBILITY.

*To the Editor of* The Lancet.

Sir,—During a recent visit to Paris I had an opportunity of seeing this remarkable case, of which you gave an account in the last number of your journal. The accident, as you state, occurred on the 23rd of October, and it is said that, the next day, Professor Richet showed, in the presence of several eminent men, that sensibility was retained both in the lower portion of the nerve, and in the parts to which it is distributed. I first saw the young woman on the 31st of October, at the Hôtel Dieu, and M. Richet was then kind enough to repeat his experiment for my own satisfaction. Having desired the patient to turn away her head, I took the further precaution of covering her eyes, while M. Richet, with a piece of stiff paper rolled into the form of a pointed stick, tickled, in the most perplexing way, different parts of the four fingers and palm, which are supplied by the digital and superficial palmar branches of the nerve. In almost every instance the patient mentioned, without hesitation, and with great accuracy, the particular spot that was touched. Nevertheless sensibility, although not abolished, was somewhat impaired, as was evident when a pin was used instead of paper to excite the skin. The application of heat and cold to the hand was not attended by very satisfactory results, since the girl's answers were very frequently wrong, both with regard to the locality and the difference between hot and cold. At the conclusion of these experiments, M. Duchenne (of Boulogne) showed that the muscles of the parts upon which they had been made had ceased to contract under the influence of electricity, and that, consequently, no re-union of the ends of the divided nerve could have taken place.

I have the honor to be, Sir,
Your obedient servant,
J. Lockhart Clarke.

**Warwick-street, S.W., Dec. 4th, 1867.**

*To the Editor of* The Lancet.

Sir,—The perusal of the annotation in your previous number on the interesting case of division of the median nerve, now under the care of Professor Richet, at La Pitié, has reminded me of an instance of similar injury that came under my notice last year. The case was as follows:—

I was sent for, on August the 15th, 1866, to see a man who had been injured in a drunken brawl. I found him in a state of stupor from drink, with some contusions and abrasions about the head and face, and a wound in the neighborhood of the left elbow-joint. This was about the third of an inch in length, situated between the internal condyle of the humerus and the olecranon, with a direction somewhat diagonal to these points of bone. It had all the appearance of an incised wound, so much so that I asked if any weapon had been used in the scuffle; but I eventually ascertained it had been caused by a fall on the kerbstone. The joint was not implicated, but protruding from the upper side of the wound was a piece of whitish tissue, which I could not replace. I therefore removed it, causing the patient to call out lustily, though he was in an almost insensible state from drink. On examining what I had cut off, I found it to consist of about the eighth of an inch of the trunk of the ulnar nerve, with the commencement of a branch given off from it. From its appearance I thought that the whole thickness of the nerve had been divided, the outer surface being smooth and untorn, and the diameter about that of the nerve at that point in an adult. I closed the wound accurately, and endeavored to keep the limb in as perfect a state of rest as was possible in the man's condition.

Beyond a little numbness of the little and ring fingers, he never complained of the slightest impairment of sensibility of movement in the hand or forearm, and in a few days resumed his occupation of a chimney-sweep, none the worse for his accident.

I had no opportunity of testing the muscles supplied by the ulnar nerve with the galvanic current, and I cannot be quite positive that the whole thickness of the trunk was divided; but it struck me at the time as most remarkable that such a lesion to a large nerve should not be followed by more serious results.

Mr. Erichsen, in his work on Surgery, mentions a case of divided ulnar nerve, where paralysis and loss of temperature existed twenty-one weeks after the injury. He remarks also, "If a portion of nerve have been actually excised, there is no restoration of function, as was shown long ago by Haighton." Delpech and Earle are mentioned as having divided the ulnar nerve in this situation (Chelius's Surgery, ii., 887) for the cure of neuralgia; but the result is not stated.

No doubt M. Richet will throw some light on this subject, which appears to have been always a "quæstio vexata."

I am, Sir, your obedient servant,
Henry W. Kiallmark.

**Princes-square, W., Dec. 1867.**

## TREATMENT OF SYPHILIS BY LARGE DOSES OF IODIDE OF POTASSIUM.

*To the Editor of* The Lancet.

Sir,—I hardly know whether the following instance of how well large doses of iodide of potassium are occasionally borne is worth putting upon record; but as the case seems to me of some interest I send it to you.

About six weeks ago a woman came to me at Charing-cross Hospital, laboring under syphilis. Her age was about twenty. She had primary sores on the labia, and a copious eruption about the nose, mouth and chin. I gave her solution of the bichloride of mercury, 1 drachm; iodide of potassium, 5 grains; decoction of bark, 1 ounce—three times a day, which she took for some fourteen days, and improved under it. The primary affection got well, but by-and-by the mouth became ulcerated internally. I increased the iodide of potassium to 10 grains, and subsequently to 15 grains, three times a day; but the mouth still continued sore. I then gave 20 grains, three times a day, and with marked benefit. There have been no symptoms of iodism at any time, and I may here remark that I have frequently noticed how well the iodide of potassium is borne in syphilitic cases. This is not the only instance in which I have found it useful to run up the dose, for to another woman I had to give 15 grains three times a day before the ulceration yielded.

I remain, Sir, your obedient servant,
Julius Pollock.

**Montague-place, December, 1867.**

## CLOSURE OF ARTERIES BY TORSION.

*To the Editor of* The Lancet.

Sir,—Having lately recommended the use of "torsion" on all occasions except where the great arterial trunks are concerned, I think it right to state that about a fortnight ago, having amputated the leg of a man in the hospital at the knee for disease of the joint, I twisted the popliteal artery with perfect ease and success. The stump being treated in accordance with the antiseptic system there was no constitutional disturbance, and no suppuration. On the fourth day there was a slight serous discharge, but hardly any afterwards and on the eighth day the wound was completely consolidated.

Although it would thus appear that arteries of the largest size are amenable to torsion, the expediency of trusting to this means for their closure, instead of employing ligatures, will admit of question until further experience ascertains how far it is safe to do so. But in the meantime there can now be hardly any hesitation in twisting all vessels of ordinary capacity; and it may be mentioned that since I adopted this system there has not been a single case of secondary hæmorrhage, either in public or private.

I am, Sir, yours, &c.,
JAMES SYME.

**Shandwick-place, Edinburgh, December, 25th, 1867.**

## ON THE USE OF CARBOLIC ACID.

*To the Editor of* THE LANCET.

SIR,—I have just completed a case of compound fracture of the leg, which I treated with carbolic acid as recommended by Professor Lister, and so ably brought before the profession in his articles published in THE LANCET.

In my case both bones were fractured, and the external opening was so complete that the fractured ends of the bones were easily felt with the finger. I may add that the bleeding from the wound was so excessive that I found my patient in a fainting state. Having set the leg, I dressed it with carbolic acid, and put it up with splints, as I would a simple fracture. Immediately on the application of the carbolic acid the bleeding ceased. Mr. Lister's directions were carefully followed in the after treatment, and the result has been most satisfactory. The wound speedily healed up, and the leg assumed the character of simple fracture. So speedy and complete was the osseous union that I was enabled to remove the splints at the end of four weeks.

I am, Sir, yours, &c.,
JOHN MACLATCHY, M.D.

**Kilmarnock, Dec. 1867.**

## CASE OF TRIPLETS.

*To the Editor of* THE LANCET.

SIR,—A somewhat rare occurrence took place in the course of my practice on the night of the 4th inst. I was summoned to attend a woman in this neighborhood, who, after five hours of strong labour, was delivered of three healthy male childeen, two of whom were fully developed, but the other was somewhat diminutive. The placenta was expelled immediately, and was of immense size. The mother and infants are progressing favorably. I may add that both parents have been totally blind from birth; the children, however, have apparently full use of their organs of vision. I am, Sir, yours, &c.,
J. J. BARRETT, M.D.

**Blackfriars-road, Nov. 7th, 1867.**

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## THE
## PRESENT STATE OF SURGERY IN PARIS.

### By SAMPSON GAMGEE, Esq.,

Surgeon to the Queen's Hospital, Birmingham; Foreign Corresponding Member of the Society of Surgery of Paris; late Staff Surgeon of the First Class.

*(Concluded from page* 128.)

THE London surgeon who, the other day, sponged the surface of a fresh stump with a concentrated solution of chloride of zinc, did something to efface the distinction which, since the days of Hunter and Bell, has marked the superiority of British surgery in the important matter of treating wounds. If so many of our large hospitals were not hot-beds of erysipelas, pyæmia, and allied poisonous diseases, by no means necessary consequences of surgical practice, but entailed by nosocomial conditions inimical to healthy nutrition and repair, English surgeons would have had no inducement to imitate the French in what, with all deference, I must call the abuse of caustics. In one clinique I saw all the tendons of a wrist laid bare by the previous application of chloride-of-zinc paste, for the treatment of chronic inflammation of the joint; and I heard the same caustic recommended for the destruction of a hernial sac immediately after an operation for strangulated hernia—with a vengeance the antithesis of extra-peritoneal herniotomy, which I found in no favor. In another hospital, a cauliflower growth of the cervix uteri having sprouted afresh after cauterisation, the surgeon proposed destruction of the whole body of the womb by thrusting into it a succession of *flèches caustiques*. He announced himself an advocate of the same method of treatment for enlarged tonsils and nasopharyngeal polypi; and he showed me, with positive pride, a malignant affection of the upper jaw *in process of cure by flèches caustiques thrust into and around the antrum*. So large a part of the patient's head had been destroyed, and the hideous chasm was so vast, that I could only explain survivorship, on physiological grounds, by recalling Fluorens' experiments on the effect of partial removal of the skull and brain in fowls. While we were discussing, Velpeau had just gone to his long rest, and I casually reminded the very enterprising clinicien, who was entertaining me with so much candor, of the palmy days of La Charité, when we both listened with admiration to the sagacious utterances of its surgical chief. With years, my respect for him has only increased, and from time to time I re-read the "Leçons Orales" of 1840, especially the first two articles,* alternately with the "Amour Médecin"—the latter a lesson in medical catholicity, the former a guide to philosophical investigation. For Molière my interlocutor professed unvarying respect; but of Velpeau he exclaimed—"L'Hôpital de la Charité ne représente pas les progrès de la chirurgie Française, mais l'état de la chirurgie antidiluvienne." I only repeat the sentence literally, as noted at the time, in illustration of the unsettled state of surgical opinion in Paris. Possibly the unbridled development of professional differences denotes the approach of scientific unity.

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* Généralités sur la Chirurgie Clinique et manière d'utiliser son temps dans les Hôpitaux. In Velpeau's Leçons Orales de Clinique Chirurgicale. Bruxelles, 1841.

The conflicting state of opinion was further exemplified in the treatment of fractures of the limbs, not quite, though very nearly, justifying the famous assertion, which has scarcely lost any of its truth, though half a century has passed since it was uttered, that "every surgeon sets a broken limb, as he writes his name, after a fashion of his own." I only found the minority convinced that the right treatment of fractures, with or without complications of swelling or wounds, is gentle, uniform circular compression, after immediate reduction, and immobilisation of the joints above and below the seat of fracture. In this matter French and English surgery have been on pretty much the same level since Pott and Dessault unsettled the Hippocratic teaching, and settled nothing. Every season brings out a new splint, lecturers still show diagrams after John Bell's boxing-glove hand, to inspire terror of bandaging, physiological compression and rude constriction are confounded, and a practice continues to be tolerated, the inconsistency of which is obvious, whether it be regarded from the point of view of rationalism or of empiricism. But it must be confessed that, in this department of practice, opinions are at last converging towards the truth, and, by a kind of poetical justice to the glorious memories of the Hôtel Dieu and St. Bartholomew's, nowhere else in Paris or London do the modern principles of treating fractures of the limbs receive a better, though still inadequate, illustration.

In another of the very many vexed questions of our science and art I was disappointed at finding little progress had been made. I saw a little boy cut for stone by the bilateral method; but the proceeding reminded me that Dupuytren, in reviving the method of Celsus, never came up to Cheselden, whose lateral operation is unquestionably superior. I was privileged to hear a good deal in favor of the alleged advantages of perineal lithotrity from M. Verneuil; but, with all deference to him and to M. Bouisson, who is the leading advocate of the proceeding,[*] it is impossible to resist the impression that if the knife is to be used at all in entering the bladder, the safest course, in the vast majority of cases, is to extract the stone at once through the aperture.

Lithotrity was so essentially a conquest of French surgery through Heurteloup, Leroy d'Etiolles, and Civiale, that I was a little disappointed with some of their reputedly good disciples. This is a point suggestive of comparison between the surgeons of France and England, on the two historical occasions in which they have of late years been practically confronted. Granting that the porcelain probe, which made the leaden bullet in Garibaldi's ankle reveal its hiding place, typified the novelty and ingenuity of French ideas, I have always inclined to the opinion, that if our philanthropic countrymen, touched by the disaster of Aspromonte, had been actuated by judicial impartiality rather than private friendship, and sent to confer with the illustrious Nélaton some one with surgical titles to universal esteem equal to his most honorable and kindly nature, the victorious issue might not have been so unquestionably with our former masters and present rivals; but the second event afforded little scope for doubt, after what I saw of the treatment of stone on my recent visit to Paris. The success achieved by Sir Henry Thompson, when summoned to Brussels by King Leopold to supersede Civiale and Langenbeck, was a genuine triumph for British surgery. The idea of the operative procedure resorted to was French; but the steady hand, active at the right moment, not meddlesome at the wrong one, the shrewed and sound management of the illustrious patient, were essentially English.

Amongst the novel contributions to surgical art which we have obtained from the French, none have exceeded in importance those for which we are indebted to, M. Chassaignac—the écraseur and the drainage system. The importance of the former was very soon recognised in this country, and the most legitimate advantages have been derived from it; but, for a variety of reasons—not the least, perhaps, because our surgical practice is attended with less suppuration—the drainage tubes only came slowly into favor, and even now are not employed in many cases which would be greatly benefited by them. The treatment of purulent empyema by surgical drainage has just received a valuable addition in a thesis by one of M. Chassaignac's most distinguished pupils[*]—one of the very few young Frenchmen whose "Thèse pour le Doctorat," by including a full review of English experience on the matter under consideration, is a worthy protest against the egotistic line of Casimir Delavigne,

> "La France c'est Paris, et Paris c'est le monde,"

which, to my great astonishment, Professor Bouillaud quoted in his "introductory" to the International Medical Congress, after addressing the assembled savants as "messieurs et très honorés confrères de France et des autres nations des deux mondes." It would be difficult to find a better illustration of French optimism, which has for some time been one of the greatest stumbling-blocks to intellectual progress in France worthy of its proud and ennobling story. I had just glanced at Professor Bouillaud's flattering quotation from Casimir Delavigne, when I happened to read something very different, which is perhaps deficient in authority in the estimation of some persons, because the source is very democratic. "En matière d'enseignement la France n'est qu'une puissance de second ordre. .......... Notre amour propre national ne s'accommodera pas longtemps de cette infériorité."[†]

To resume the surgical narrative. I found that drainage tubes for the treatment of empyema had been employed by Professor Gosselin at La Pitié in several cases. The one which came under my observation promised to be very satisfactory. The patient, a young man twenty-five years of age, was walking about the ward, looking somewhat delicate, but quite easy, and reported himself steadily improving in health. He had a long history of left pleurisy. I found a drainage-tube, from which odorless creamy pus was oozing, passing horizontally through the body from an inch and a half vertically below the left nipple to within an inch and a half of the dorsal spine on the same side. The date of my visit was August 29th; the tube had been passed July 16th, and it was intended to keep it in place six months. The same patient had been subject to a similar procedure on Sept. 8th, 1866, and that drainage-tube was removed on Dec. 14th. The case was at the time looked upon as cured, but the fluid again accumulated in the pleura, and the urgency of the symptoms counselled the second operation.

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[*] De la Lithotritie par les Voies Accidentelles. In Bouisson's Tribut à la Chirugie. Montpellier, 1858, vol. i., pp. 31-60.

[*] Thèse pour le Doctorat en Médecine, présentée et soutenue à la Faculté de Médecine de Paris. par A. L. M. Hobon. Paris: Parent, imprimeur de la Faculté. 1867.

[†] Le Siècle, Aug. 31st, 1867,

These bedside notes are very far from having exhausted the collection which the courtesy of my colleagues permitted me to make, and the transcription has been so much a source of pleasure that I interrupt it with regret; but the value of the space occupied, and the large number of scientific communications which aspire to a place in it before the year closes, compel me to resume the reflections which occupied the earlier papers (Aug. 31st and Sept. 7th), and were interrupted by the parallel between Lawrence and Velpeau, suggested by the interment of the latter at Mont Parnasse.

Clinically speaking, the interest of the "present state" is not so much absolute as relative to the origin of the phenomena, the process of their development, and the probable operation of causes on future events. And this is the relative interest which I should have wished to import into the narrative of the "Present State of Surgery in Paris." The programme is a very wide one. Its worthy fulfilment would be a very difficult matter; but it may be possible to supplement some of the more important omissions and imperfections which have marked this series of communications.

In the first two epochs in the history of modern surgery the French were unquestionably superior. We have no one to oppose to Ambroise Paré; and as a band of learned men, with lofty aspirations and fixed purpose, laboring for the advancement of an important department of human knowledge, the old Surgical Academy of Paris has never been surpassed in our profession, or in any other. In medicine, strictly so called, the French were less fortunate; and the early fame of British physicians by-and-by exercised an influence, which has largely contributed in placing our surgeons in the front.

It is a singular proof of the lasting prestige attaching to early victory, in science as in arms, that the conquests of French physicians in the present century have been powerless in reversing the verdict of Molière and Guy Patin, who, in the reign of Louis XIV., so abundantly illustrated, at the expense of their Faculty of Medicine, the national proverb, that nothing is so murderous as ridicule. When the London College of Physicians and the Paris Faculty were arrayed against each other in the disputation between William Harvey and Riolanus, original observation and sound induction were all on our side. Presently Sydenham gained practical renown for British physicians, as unrivalled as had been the lustre which Paré, nearly a century before, had shed upon surgery beyond the Channel. For manly character, devotion to freedom, and love of truth, Sydenham and Paré were alike distinguished; but the latter, springing from the people, without the advantages of early training, never succeeded in throwing off entirely the *garçon barbier*, just as Velpeau to the last had a good deal about him of the *maréchal ferrant*. It was otherwise with Sydenham: a commoner of Magdalen, he brought to the study of medicine intellect and learning, power and method. The medical history of no French university can boast of a page so brilliant as that of Oxford in the middle of the seventeenth century under Sydenham, Lower, and Willis—anatomy, physiology, and medicine advanced abreast. Well might the illustrious Boerhaave take off his hat when he mentioned Sydenham to his class, under the proud but well-deserved title of *Angliæ lumen*.

We were very soon to feel the powerful influence which Scotland has since so frequently exerted on the progress of medicine and surgery. To the county of Lanark belongs the merit of giving birth to William Cullen and the Hunters, of whom the elder, William, in his partnership with Cullen as country apothecaries, furnished the materials of one of the most ennobling stories of devoted friendship in the pursuit of science. It was agreed between Cullen and William Hunter that each should stick to the shop alternate years, earning the money and the leisure necessary to enable his partner to study medicine. Accidental circumstances soon separated them. Cullen grew famous in Glasgow and Edinburgh, while William Hunter, in London, educated his brother John, and founded the school of Hewson and Cruikshank, Baillie and Jenner. All the more modern success of Corvisart and Laennec, Pineal and Esquirol, Andral and Rayer, Louis and Chomel, have not reversed the position which British medicine had firmly established, before the close of the last century, on the basis of clinical observation, enlightened and directed by sound physiology. A genius like that of Broussais, splended but erratic, fascinating but illusory, could never have gained here the influence which it exerted so perniciously in France. The traditions of Harvey and Sydenham, of Cullen and the Hunters saved us.

If we challenge French surgery for a rival to John Hunter, it must in candor be admitted that no other surgeon has ever had such preceptors as he had in his philosophical brother William, the dexterous Cheselden, the learned Percival Pott; and neither has any other surgeon ever returned the educational advantages he received in such liberal measures as did John Hunter, whose race of pupils, through Abernethy and Cline, Bell and Brodie, have founded a line of physiological surgeons essentially British.

If it be conceded that no other nation has, in direct succession, given to the science of physiology three such original men as Bichât, Magendie, and Bernard, it cannot, on the other hand, be denied that the effect of their labors on surgery has been least marked in their own country. We have it in Sir Benjamin Brodie's autobiography that he was led to the physiological inquiries which were the foundation of his scientific reputation, and of his success in surgical practice, by the perusal of the very remarkable books for which we are indebted to the genius of Bichât. No surgeon was so deeply and happily affected by them. Physiology in France has grown up a science exercising comparatively little influence on surgical practice, just as chemistry is there less intimately blended with the history of medicine than it has been with us; and medicine itself has continued more or less foreign to French surgery. If the French had no contemporary rival to Cullen as a chemist, therapeutist, and practical physician—and I decidedly think they had not, in spite of his abuse of the synthetical method, and the palpable faults of his nosology,—they had no one who could bear comparison with him as the founder of a school. Amongst his immediate pupils were the worthy descendants of the inventor of the Gregorian telescope, and Black, the precursor in thought, as he was in time, of Lavoisier, honored by Fourcroy as "Le Nestor de la chimie du dix-huitième siècle." In such a firmament John Hunter was still great light enough to shine with historic splendor. With such predecessors and contemporaries, he, though unknown to himself, was in the most favorable opportunity for founding the original school which glories in his leader-ship. The chemical, physiological, and medical ideas which, with anatomical and surgical knowledge, made Abernethly, were inherited from the school of Cullen, Black, and Fordyce; and from the same source sprang William Prout, in whom English surgeons found a teacher and guide, who did more than any other man to develop Abernethy's famous doctrine of the constitutional origin of local diseases.

By giving the preference, because of their far greater facilities in obtaining bodies, to the study of descriptive and regional anatomy, and to the practice of operations on the body, the French school of surgeons neglected physiology, chemistry, and medicine proper, and applied themselves to a line of work less truly scientific, and less fruitful in later progress, than did our countrymen, who, it must be owned, were always ready to go abroad for improvement.

Just as Linacre had prepared himself for laying the foundation of the London College of Physicians by studying in Florence, with the sons of Lorenzo de Medici, under Angelo Poliziano and Chalcondylas the Athenian, as Harvey learned the pulmonary circulation from Realdus Columbus, and sat under Fabricius ab Aquapendente at Padua, so did Sydenham learn from Barbeyrac at Montpellier, Pitcairne lay the foundation of his mathematico-medical lore at Rheims, and Joseph Black imbibe his first lessons in philosophy under Montesquieu on the sunny banks of la Garonne: and so too have many more of our countrymen been indebted to foreign sources for the influences which, in intellect as in physique, have had so large a share in constituting this nation.

The greater attention to the study of constitutional states by English surgeons is all the more remarkable that the legal requirements of their College were, until very lately indeed miserably scanty, whereas the Paris Faculty long since insisted on the double qualification. But necessity is really the most fertile mother of invention, and it does seem after all, that more men may be spoilt by over-training than by insufficient culture. French surgeons have been required to pass a severe examination in medicine, and have for the most part been very poor physicians; Englishmen have been sound ones, though not required by law to possess any knowledge whatever of internal diseases. The fact is certain, though its causes are in great part obscure, as are, indeed, the causes generally which in so many branches of knowledge and art have given superiority to Englishmen, in spite of their many disadvantages except the blending of races, by conquest and immigration, which has been most propitious.

During the lifetime of the great men for whom, in many instances, I have claimed decided superiority over the French, the organisation of their medical schools excelled, and their literature was more copious and systematic. When Valleix wrote his "Traité du Médecin Practicien," we had no work to compare to it for analytical spirit scientific arrangement, lucid exposition, and close reasoning. Though Vidal de Cassis was nothing as a surgeon compared to Liston, the latter could find time enough to study as a text-book the former's "Traité de Pathologie Externe et de Médecine Opératoire." Malgaigne's Introduction to the collected works of Ambroise Paré must go down to posterity as one of the very few literary monuments erected by a surgeon in the present century.

The causes of the contrast are national rather than professional. France has a school and a literature on Equitation; but only England has a Pytchley Hunt. The glory of the *Espirit des Lois* and of the *Code Napoléon* is essentially French; but Habeas Corpus and the free Parliament are English. The engine-driver on a French railway is often a good pupil of the Ecole des Arts et Métiers, knows a great deal about physics and every now and then is nearly as good a mathematician as he is a mechanic; but he would be sorely puzzled to match one of our men in piloting the Holyhead mail at fifty miles an hour through a November fog. In many departments our education is defective, and our method imperfect; but the result is strangely, and to a great extent inexplicably, satisfactory, when tested by the measure of success.

Professor Bouillaud, in his quotation of the line from Casimir Delavigne, suggested a reasonable explanation of the comparative state of medicine and surgery in our respective countries. Intellectually, any more than geographically, it cannot be conceded that "La France c'est le monde;" but a very distinguished French Adademician may be allowed to be an authority when he complacently calls a national poet to witness that "Paris c'est la France." It is because France has had only one capital, and that city has represented or absorbed the chief life of the nation that Britain has so often risen superior. In our own profession, Strasbourg and Lyons jointly have been no match for Dublin; and allowing fully for the glorious and ancient history of Montpellier, Edinburgh has distanced it since Scotchmen ceased to waste their energies on the vain disputations which absorbed them in the seventeenth century,* and with Cullen, Black, and the Hunters, commenced giving to the world a line of medical philosophers unbroken to this day.

The deep obligations under which we lie to the French have been stated insufficiently in consequence of the cursory nature of this sketch, but with unreserved sincerity and respect. There is still another debt to be acknowledged. We could scarcely be said to have any system of clinical instruction when the French had perfected one. While Dupuytren was delivering to audiences of many hundred pupils the famous Lecons Orales de Clinique Chirurgicale, our leading surgeon was disposed only to make public so much of his work as suited his taste and reputation but insisted on guarding the great institution over which he presided as a close borough or a private domain. Wielding the influence which Sir Astley Cooper did, it required a man of such genius, impulse, and intrepidity as Thomas Wakley to join issue with him with anything like a bare prospect of success. The struggle was fierce, as all contests were in those days; but the moral victory was complete. With the establishment of THE LANCET in medical repute, a power was created which dealt the death-blow to secrecy in our hospitals, and exerted a more powerful influence than any other agent in making them public schools for clinical instruction.

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* **Buckle: An Examination of the Scotch intellect during the seventeenth and eighteenth centuries, in "History of Civilisation," vol. ii., pp. 330—601.**

The progress has been rapid, but much remains to be done. We may perhaps not hear again for a long time of a surgical philosopher raised by the voice of the profession, of statesmen, and the people, to be the professional adviser of his Sovereign, while still assistant-surgeon to a metropolitan hospital without beds. That was so glaring an absurdity that it proved fatal to the dominion of the *vieilles perruques* who were its cause. But it will be a long while before a young man shall be able to find his way into London, as Velpeau did from Bretonneau's clinique into Paris, so poor that his pallor excited the commiseration of the hospital Sisters of Chairty to supply him with occasional meals; yet with the road so open to merit that he won every step in public competition, and over the head of Lisfranc the rival of Dupuytren, the favored of the best *salons* of Paris at forty years of age was seated in the *fauteuil* of the Academy at the demise of the elder Larrey. Had Velpeau been in London, with his love of truth, and his impetuous energy, he might have found it difficult to bend sufficiently low and long to mediocrities in power to obtain by favor what he could claim by merit.

To resume the clinical parallel. I have endeavored to record the signs of the present state of surgery in Paris, and, to trace out their causes. The prognosis is untouched; that would involve the exposition of a scheme of surgical work adapted to meet the wants of the present epoch in the history of our art towards perfection as a science. My readers have probably been detained long enough to accede with alacrity to a plea for postponement to some future occasion. Such an undertaking requires a good deal more thought than could conveniently be given to it in the spare hours of an hospital surgeon's holiday during a fortnight's visit to the Paris Exhibition.

**Birmingham, Dec., 1867.**

## SURGERY OF THE LATE AMERICAN WAR.

WE have just received from the War department Surgeon-General's Office, Washington, a Report on Amputations at the Hip-joint in Military Surgery. This forms Circular No. 7, being in continuation of the series of admirable Surgical and Medical Reports issued by the United States Government. It is an important document, inasmuch as it embodies the experience obtained during the war of the great American rebellion. An account of the cases of gunshot injuries of the upper portion of the thigh, in which conservative measures were adopted under circumstances commonly believed to justify exarticulation of the femur, is promised hereafter, on the completion of the analysis of the immense statistical material on gunshot fractures of the femur recorded in the Surgeon-General's office.

There is a historical summary of amputations at the hip-joint by way of preface to the experience obtained during the late war, and recorded in the Circular. Very creditable care appears to have been exercised in tracing out and substantiating the accuracy of the cases detailed. Fifty-three well-authenticated instances of amputation at the hip-joint occurred where the operation was performed on account of injuries or of consecutive lesions; 34 arose in the armies of the United States, and 19 in the rebel armies, as the force of the Confederates is termed.

The 53 cases are divided into four categories—viz., *primary amputations*,—those performed in the interval between the reception of the injury and the commencement of inflammatory symptoms, a period very rarely exceeding 20 hours; *intermediate*,—those amputations performed during the inflammatory stage, a variable period, usually included between the day after the reception of injury and some time in the second or third month; *secondary*,—comprising those where operations were performed at a period when the inflammation had abated, and the lesions had become, in a measure, local and analogous to chronic diseases, excluding cases in which amputation had previously been performed in continuity; these being included in the fourth category, and designated *reamputations*.

The report contains an analysis of 108 previously recorded cases of this operation in military surgery; but we shall restrict our attention to the histories of those published in this Circular, and we cannot do better than follow the chronological order by noting the results obtained in each of the preceding four categories.

Of 19 cases of primary amputation all were performed within 20 hours of infliction of the injury: some were in the strictest sense of the term immediate amputations; and the average interval between the reception of the wound and the operation was seven hours. Eleven of the patients succumbed to the direct shock; 3 lingered for two days, 2 for eight or ten days; 1 has survived over four years, and is still in excellent health; and in 2 cases the recoveries cannot be regarded as authenticated beyond all question.

The 18 operations included in the second category—intermediate amputations—all ended fatally. Out of 9 cases included in the series of *secondary* amputations, 2 recovered and 7 died; 3 of the patients sank from the shock of the operation.

The *re-amputation* series was the most succesful, inasmuch as it comprises 7 cases, with 4 recoveries—a ratio of mortality of 42·85. These seven cases related in the Report, with Guthrie's Ciudad Rodrigo case of a private soldier in the 23rd Regiment, are the only recorded examples, it is said, in military surgery of amputations at the hip-joint succeeding previous amputations in the continuity of the thigh. If, however, the experience of this operation in civil life be reckoned up, it amounts to 10, and grouping these with the 8 military cases, we have a series of 18 examples of removal of thigh stumps by amputation at the hip-joint, with 12 recoveries and 6 deaths.

We have not space for going into the detailed account of many of the cases recorded; some of them are very interesting in a pathological sense. We may, however, call attention to the chromolithographs, which are very good, and to the photographs of the morbid preparations, which are also excellently executed. Altogether, this Circular is a very creditable production, and worthy of the United States Government and the surgical staff of its War Department.

# Foreign Gleanings.

### VERTEBRAL POLYARTHRITIS.

M. Broca, Malgaigne's successor at the Faculty of Medicine, has brought this affection before the Surgical Society of Paris, and gives further developments in a letter to the *Tribune Médicale*. Sir B. Brodie, and Delpech after him, have described a malady attacking the intervertebral substance without causing any caries of the bodies of the vertebræ. M. Nichet (1840) has also shown that the discs may be primitively affected. M. Broca has studied the disease anatomically and clinically; and, though he is not positive as to an inflammatory origin, he clearly states that, in a case he examined after death, the intervertebral substance of the last dorsal and all the lumbar vertebræ was destroyed, an abscess having formed in front of the spine; but the bodies of the vertebræ had remained unaffected. Clinically, he considers that, when five or six of the discs are destroyed, a sinking of the column is observed.

### SUBPERIOSTEAL RESECTIONS OF THE ELBOW.

M. Ollier, of Lyons, who has attached his name to subperiosteal resections, has lately brought three cases before the Medical Society in which he resected all the processes of bone entering into the articulation of the elbow. By very careful management, and minute care, the periosteum and tendons inserted into it, were carefully preserved. The result in the three cases mentioned has been the complete regeneration of the joint, both as to form and movements. That such complete success may be attainable where excision of the articulation is necessitated by a recent injury, can be easily understood; but when the joint has been long the subject of caries, when the periosteum itself has been destroyed by chronic morbid processes, it is difficult to believe that much of that membrane can be made available for regeneration of bone. At all events, M. Ollier's cases will prompt every surgeon performing resection to preserve as much of periosteum and insertion of tendons as possible.

### DISINFECTANT PROPERTIES OF COFFEE.

It is not generally known that slightly roasted and ground coffee placed on a warm surface, such for instance as a fire-shovel, will neutralise vapors of ammonia and sulphuretted hydrogen.

### ANIMALCULES IN WHOOPING-COUGH.

The existence of minute organisms in various pathological secretions, or exhalations, is gradually being made out; and as such have also been found in normal secretions and excretions, it may be suspected that ere long the present pathological views respecting a variety of diseases will be wonderfully changed. Quite lately, M. Poulet mentioned, in the *Cosmos*, having found in the moisture of patients suffering from whooping-cough, infusoria belonging to the class Bacterium bacillus.

### CÆSAREAN SECTION SUCCESSFUL FOR MOTHER AND CHILD.

This case is published in the *Bulletin* of the Academy of Belgium, and quoted by the *Bulletin de Thérapeutique* of Paris. The pelvic measurements were very small, and the woman had, in a first confinement, been delivered by the forceps with much difficulty. On a second gestation she was advised to submit to an operation for premature labour, but refused. When the pains came on, at the term of pregnancy, the head became locked, and attempts with the forceps were fruitless. Messrs. Tiberghein and Poupart, perceiving a knuckle of intestine belonging to the mother issuing from the vagina, and the child being alive, performed the Cæsarean section. As the bladder had not been emptied, its fulness gave some trouble. The gut, which had escaped through a rent of the vagina, was replaced, and both mother and child did well.

### SUCCESSFUL TREATMENT OF CAROTID ANEURISM BY VALSALVA'S METHOD.

M. Vanzetti mentions the case of a pork-butcher, aged sixty-six, who, many years ago, had suffered from carotid aneurism, and had refused an operation at Ferrara. Having returned to his village in the Tyrol, his medical attendant subjected him for eleven months to Valsalva's treatment, after which a complete cure was affected.

# News Items, Medical Facts, &c.,

**Deaths from Inhalation of Chloroform in Paris.**—In a late number of the *Gazette des Hôpitaux* we find a detailed account of two such deaths. One took place on the 14th of August last, the subject being a young girl of nineteen. She had taken chloroform, without any unpleasant consequences, three weeks before, to facilitate the excision of warts situated about the vulva. A second operation being necessary, she insisted on having chloroform administered again; and though she inhaled but a small quantity from a compress kept an inch from the face, she presented, after half a minute, symptoms of asphyxia, from which, in spite of the most unremitting efforts, she never recovered. M. Broca took an opportunity, when this case was mentioned at a meeting of the Surgical Society of Paris, to relate a case of his where a boy of seventeen died during an operation for the removal of a cystic tumour of the neck, whilst inhaling chloroform. This latter case was a most painful one, as the patient was seized with most violent excitement whilst a large vein at the bottom of the cyst poured forth much blood. The deligation of the vessel became extremely difficult during the almost uncontrollable convulsions of the boy, and fears were entertained that air might penetrate into the vein. At last the vessel was secured, and the surgeon was proceeding to dress the wound, when, several minutes after the chloroform had been removed, the pulse at the wrist suddenly stopped, and the patient died after artificial respiration had been kept up half an hour. M. Broca thought, at first, that air in the veins had killed the patient; but this view was not confirmed by the autopsy. It was understood, afterwards, that the boy had been subject to epileptic fits.

**The Destruction of the Gavial a cause of periodical Epidemics of Cholera.**—One of the recent numbers of the *Cosmos*, a well-known French scientific journal, contains the following lines:—The gavial is a variety of crocodile, which may attain the length of five or six metres. It inhabits the mouth of the Ganges, and feeds on the dead bodies which for thousands of years the Brahmins have caused to be thrown into the sacred waters of the Indian river. The British soldiers have waged a terrible war against the providential animal; but, on dying away, the conquered race has bequeathed cholera to us. Such, at least, is the opinion of M. de Bretagne, who has just read, at the Société Protectrice des Animaux, a paper in which he asks authority from the Society to do something for the preservation of this useful amphibious animal.

**A Correspondent** of "The Times" tells us how he served a quack doctor who annoyed him by sending him pamphlets through the post. "I got a large hamper, filled it full of rubbish, bricks, straw, &c., and in the middle I put the last book I had received, and outside the book I wrote 'Sold again.' I directed the hamper to the author of the book—'Dr. So-and-So, &c., from a grateful patient,'—stuck some hare's legs under the lid, so as to let him see what was inside, and sent it by express train. I never had another book."—*Pall Mall Gazette.*

**The** New York State Asylum for Inebriates, according to the *Pall Mall Gazette*, is declared to be remarkably successful, both as to the willingness of inebriates generally to enter it and its curative effects. It is a handsome Gothic building near Binghampton, with chapel, library, gymnasium, billiard-rooms, and conservatories. There are 500 acres of grounds belonging to it. The building and grounds have cost 500,000 dollars. The corner stone was laid in 1858, in the presence of Edward Everett and other distinguished gentlemen. Dr. Day, its superintendent, an eminent physician, has found no need of severe restraints for his patients.

**University of Edinburgh.**—The Annual Meeting of the Association for the better Endowment of the University of Edinburgh, was held a few days ago, under the presidency of Lord Deas. The report of the Committee states that an appeal is about to be made to the public to provide additional accommodation for the departments of chemistry and anatomy; and a hope is expressed that Government will not fail to aid the medical school of the University in carrying on its work successfully.

**Novel Disposal of a Fee.**—Dr. Guillon, senior has just presented the Academy of Sciences of Paris with £440, the fee sent to him by the Emperor, to found a prize to be awarded, every third year, to the author of the best work on a special branch of the medical art. Dr. Guillon is known for his skill in the treatment of urinary diseases; and may, by this rather boastful act, be reckoned among those who neglect no opportunity of acquainting the public with the exalted position of their clients.

**Complete Removal of the Spleen; Recovery.**—M. Péan, a hospital surgeon of Paris, has just successfully performed this operation upon a young girl for a tumour connected with the spleen. The proceedings were carried on with great caution, and comparatively little blood was lost. M. Péan's house-surgeon has published in *L'Union Médicale* of this month, an account of all similar operations which have to this day been undertaken, including Mr. Spencer Wells's.

**Mr. Lawson Tait**, in the current number of *Science Gossip*, states that last August, happening to be walking by a spot where swallows congregate, he found one of these little birds, which had just died, but was still warm. On dissecting the swallow, the pleural surfaces of the lungs were studded with minute yellowish grey points, which presented under the microscope all the characters of tubercle. Similar nodules were found in the mesentery, which were probably glands in a state of tuberculisation.

**Veterinary Vivisections in France.**—The Secretary of State for Agriculture and Commerce has just restricted, by a recent regulation, the number of operations which, for the sake of practice, are to be performed upon the living horse. Students may not go beyond bleeding, setons, simple tapping, tracheotomy, various operations upon hoofs (only one on the same horse), castration, &c. After the latter, the animal is to be quickly killed by the least painful means.

**Death of M. Lagneau.**—This distinguished physician has just died at Paris. More than forty years ago, M. Lagneau began his publications on venereal diseases; and was, for a long time, an authority on these complaints. Ricord, however, attacked the school of which the deceased was partly the leader, and the latter was gradually eclipsed. His career was of a most honorable character; he was member of the Academy of Medicine, and has left a son who has successfully worked in the same field.

**A new Medical Senator.**—It will be recollected that Dr. Conneau, the physician-in-ordinary to the French Emperor, has for a long time been connected with the Imperial family, and that it was through his clever contrivance that Napoleon the Third escaped from Ham. The latter has always shown himself grateful to his medical adviser, and has lately created him a senator. Several French medical papers wonder why this favor was not granted long ago.

**Noxious Effects of the Kernels of Peach Stones.**—At Toulon, a short time ago, three children, from four to five years old, who had eaten some of these kernels, were seized with very severe convulsions. One died in less than an hour, the two others, who had perhaps partaken less freely of the poisonous substance, recovered, thanks to very active and persevering therapeutical measures.

**The Sanitary State of Schools in France.**—The French Government have just adopted a very important measure. Dr. Vernois, physician to the Hôtel Dieu of Paris has been entrusted, by the Secretary of State for Education, with the task of visiting all the Government schools of France (Lycées), and to report upon the hygienic management of these establishments. We hope the measure will be extended to municipal and private schools.

**An Italian Prize.**—The Medico-Chirurgical Society of Bologna offers a prize of £80 for the best essay on the following subject: "Point out and examine the share of Italy in the Advancement of the Science and Art of Surgery, from the beginning of the nineteenth century to the present time." To be sent in before the close of the year 1869.

**Baron Larrey**—This worthy son of an illustrious father has just been elected a member of the Academy of Sciences of Paris, in the place of the late Civiale. The medical press are unanimous in hailing this election as a fit reward for indefatigable industry, and the distinguished manner in which Baron Larrey has upheld the lustre of a great name.

**At** a convention of the Physicians of Maryland lately held, a petition was drawn up for presentation to the President of the United States praying for the release of Dr. Mudd, the surgeon who set the fractured leg of Booth the assassin, and who was condemned to perpetual servitude on the Dry Tortugas.

**Chairs of Chemistry in France.**—The celebrated Dumas and M. Ballard have retired from the chemical chairs of the Faculty of Sciences of Paris, and have successors equally conspicuous for valuable labors in chemical science, MM. Pasteur and Sainte Claire Deville.

**Medical Debts.**—The "France Medicale" says that a banker in Saxony has opened a branch in which medical men are invited to send accounts against their patients. The banker takes charge of the bills, and is content with 5 per cent. discount.

**The** "Scotsman" announces the death of Prof. M'Dougall, at the age of sixty-one. This gentleman was Professor of Moral Philosophy in the University of Edinburgh, but was disabled in 1866 by an attack of paralysis.

**A Case** of Cæsarean operation is recorded in a recent number of the *Alloa Advertiser*. The mother had been dead twenty minutes before the child, which is living, was extracted.

**Dr. Medlock** states that the "Greek fire" may be at once extinguished by a solution of common washing soda in the proportion of one pound to a gallon of water.

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# THE LANCET.

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## Clinical Lectures
ON
## DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir Henry Thompson,

Surgeon-Extraordinary to H. M. the King of the Belgians; Professor of Clinical Surgery, and Surgeon to University College Hospital.

### LECTURE I.

Gentlemen,—I propose to give a course of lectures on the Surgical Diseases of the Urinary Organs, and my object will be to afford you that information which will be most useful at the bedside. I shall not consider their anatomy or physiology, since that would make the course much too long. In the systematic lectures of the College it is impossible to communicate all those practical manœuvres, those little things which one arrives at either in the way of diagnosis or treatment, which are so valuable in practice hereafter; neither is it possible that you should all acquire them at the bedside, since no hospital can furnish patients sufficient for the purpose: but you can learn a great deal by the conversational communications which are made here. It will be my aim to render available the result of experience which it has cost me years to acquire, and I shall do my best to communicate it to you in as many hours.

I have selected this course of Clinical lectures on the Urinary Organs for two reasons. First, my ward always affords *groups* of these cases; you can always find there abundant material for consideration at the weekly clinical lecture. Secondly, because I do not know any set of diseases that are so successfully dealt with if you understand what you are about, or any in which you may make such dangerous mistakes if you are not well acquainted with them. Neither do I know any diseases in which you can afford so much relief to suffering, none in which a skilled hand can do so much for the patient, and none in which you can gain more credit for yourselves. It is therefore exceedingly important that you should be thorough acquainted with them.

I hope, in the course of ten or twelve lectures, to carry you through Part I. of the list of subjects before you.

I. Diseases of the Urinary Passages.

*a. Diseases essentially inflammatory.*

Urethritis,
Prostatitis, } acute and chronic.
Cystitis,

*b. Diseases essentially obstructive.*

Stricture of the urethra.
Hypertrophy of the prostate.

*c. Calculous diseases.*

Of the urethra.
Of the prostate.
Of the bladder.
Of the pelvis of the kidney.

*d. Tumours—malignant and non-malignant.*

Of the prostate.
Of the bladder.

II. Diseases affecting the Secreting Organs.

All organic changes in the kidney; also those altered conditions of the urine which depend on constitutional disease, such as Bright's disease and saccharine diabetes.

But before doing so, I shall get you to consider for a moment the title I have affixed to this course —viz., "The Surgical Diseases of the Urinary Organs." Now, you may ask, "What are the surgical diseases of the urinary organs, and what are not?" To my mind it is very easy to tell you what are surgical diseases of those organs, but not so easy to tell you what are not. Look at the list before you, and see where the line should be drawn. Certainly the first division belongs wholly to that class —all diseases of the urinary *passages*, excluding the kidneys, which we will assume to be secreting organs. Undoubtedly all that part belongs to the surgeon. The physician, conventionally, claims the second; but since it is impossible to make a diagnosis of any of those diseases without well understanding the whole, and as the physician does not make a physical examination by means of an instrument, I am compelled to say that all affections of the urinary organs must fall under the care of the surgeon. This statement may not be universally acceptable; but if we consider the matter, we shall see that it is absolutely necessary for the diagnosis of urinary diseases to be able to pass a sound or catheter. I do not say that the physician is incapable of doing this; but, conventionally, it is not practised by him. And you can no more treat diseases of the urinary organs without the ability to use these instruments than you can treat diseases of the chest without understanding the use of the stethoscope.

The first step in our course is naturally that relating to Diagnosis. I say almost nothing about the pathology and treatment of any one of these diseases to-day. The question before us now is diagnosis, and you will understand this to be a most important thing in all diseases—to know accurately what you are about to treat: there is then little difficulty as to the treatment. Many books can tell you the one; no book can tell you the other. Diagnosis can only be accomplished by the application of certain rules after some practice. It is the first thing to learn and to use; it is the last thing to be perfectly acquired. Indeed, no man, let him live as long as he may, will ever be a perfect diagnostician. He may approach perfection; but if he is a diligent student, as he ought always to be, he will improve his powers of diagnosis as long as he lives. That is the reason why age or experience gives value to an opinion. It is long observation and extended experience that enable a man to arrive at a diagnosis with greater certainty than the younger practitioner can possibly do.

Then we want to learn, not merely diagnosis, but the *art of making a rapid diagnosis.* When called to the bedside, your action must often depend on the first three or four minutes of your interview. It may be easy to go home quietly, think over the case, pull down the authorities, and say "I think the patient has so-and-so." That will not always do; it may do in some cases, and it had better do than that you should attempt to treat the case without having made up your mind as to the diagnosis. But that which will make you successful, that which distinguishes between the intelligent practitioner and him who is not so, is the ability to make a rapid as well as an accurate diagnosis of the case before him. Now, in calling your attention to this subject, I am afraid I cannot guarantee that you shall leave this theatre an hour hence first-rate diagnosticians of these diseases; but I can give you the method which, after a good deal of thought and experience, I have found best to answer the end proposed, and you can apply it afterwards for yourselves. First, you should pursue your diagnosis on a uniform plan—that is, you should adopt a uniform mode of interrogating each case of urinary disease. And what I say of this disease is applicable to most others. Your object is to collect *facts*, and your diagnosis consists of the *inference* which you draw from those facts. You will endeavor to arrive at the facts by the shortest possible route, and by the most accurate method. You should ask questions, make observations by the eye, by the hand, and by instruments, and then examine the secretions. Take them in that order: first, observation by questions; second, observation by the eye, by the hand, and by the instrument, which after all is but a long finger. You have no finger which is long enough to go down these narrow passages, and you lengthen it by means of your instrument. So with regard to the eye: your endoscope, whatever it may be worth (as to which I shall have something to say presently), is simply an increased ability to see.

First of all with regard to questions. You may make out most cases of urinary disease—say five out of six—by four simple questions, including the minor extensions which arise out of them. I always ask the patient these four questions, and in the following order. The first is, "Have you any, and if any what, frequency in passing water?" Then as a branch of that question, springing out of it, I ask whether the frequency is more by day or by night, or influenced by any particular circumstances. How the question applies I will tell you afterwards. Then, secondly, I ask whether there is pain in passing urine, and whether *before* or *after*, or *during* micturition; and whether at other times also, and if produced or aggravated by quick movements of the body. The locality of the pain is also to be ascertained. Then I ask as a third question, "Is the character of the urine altered in appearance? Is it turbid or clear?" Possibly the patient will tell you that it is turbid; but you find, on questioning further, that is was passed perfectly clear, and only became thick after cooling or standing. The fourth and last question is—whether blood has passed in any way, whether it is florid or dark, whether passed at the end or at the beginning of making water, or whether independently of micturition altogether; and such-like supplementary inquiries. These are the four questions, and let me remark that the answers you get will depend very much upon the way in which you put the questions. The patient is not always self-possessed, or he does not clearly understand the nature of the question you put. It is necessary to be very precise and very distinct in your questions if you wish to get accurate answers. In fact, there is no such difficult thing in all experience, whether in our profession or out of it, as to arrive at facts; and let me remind you, again, that diagnosis consists of the acquisition of *facts*, and that it is impossible without them. Now you will say, how do I apply this to the list of diseases before you.?

First, as to the frequency of passing water. There is no serious affection of the urinary organs except one or two which I will name, in which you have not more or less frequency of passing water. For example: A man may have stricture to a considerable extent; the stream may be very narrow, and he may not for some years complain of frequency of passing water. I have classified these diseases, as you see, so that we may deal with them more easily. First of all, there are the inflammatory diseases—inflammation of the urethra, of the prostate, and of the bladder. In all these you have frequency in passing water. Not necessarily, however, in urethritis, until it reaches the distant part of the canal near the bladder. I do not propose to enter upon the subject of urethritis here, as you have frequent opportunites of studying it in the out-patients room. I am now only referring to this symptom of frequency of passing water as existing more or less in all these three diseases at some time or another. In hypertrophy of the prostate you have it, and it is remarkable that it is more at night than in the day. In chronic prostatitis it is usually present to a small extent; in cystitis it is, of course, a characteristic symptom. In calculous diseases it is prominently met with, and generally its degree is in proportion to the amount of movement permitted to the patient. Tumours, of course, malignant and non-malignant, are attended by the same symptom. In pyelitis, and in almost all organic changes of the kidney, in Bright's disease, and in diabetes there is frequency of making water. Whenever the natural characters of the urine are altered before it reaches the bladder, the secretion produces irritation. This fact is worth dwelling upon for a moment. Diluted or watery urine is often regarded as unirritating; on the contrary, it is not generally well retained by the bladder. The bladder is never so content as when it contains a urine of average, or more than average, specific gravity. Some persons, hysterical patients for example, will pass urine which is quite pale, almost like natural water, and the bladder is always more or less irritated by it. Of course in diabetes you have not only the character of the urine altered, but the quantity much increased.

The next question has reference to pain; and when you get answers as to the nature and seat of pain you will begin to see your way towards a diagnosis. In prostatitis there is usually pain at the end of passing water—less severe, but resembling somewhat that of stone; as the bladder contracts, when empty, on the tender prostate. In cystitis the pain is usually before micturition, because the inflamed bladder is sensitive on being distended, and is anxious to get rid of its contents The pain is just above the pubes. When cystitis is acute, pain may be felt in the perineum also; but in chronic or subacute cystitis it is suprapubic, and not at the end but at the beginning of making water, unless the prostate is affected, and then the tender prostate gives a little pain at the end.

In stricture of the urethra there is often pain about the seat of the obstruction, an idea of which you may obtain by a simple experiment. If when passing urine with a full stream, you suddenly narrow the passage with your finger, so as to diminish the stream one-half or more, you will experience an acute pain.

There may be pain with hypertrophy of the prostate, inasmuch as this is frequently associated with chronic cystitis, when the pain is before making water, and not afterwards—differing in that respect from stone. The bladder wants to get rid of its contents, and can do so but slowly, on account of the enlarged prostate, which stands as a barrier in the way. During its first contractions, which expel but little urine, there is pain above the pubes and deep in the perineum; but when a third or a half of the contents has issued, the patient is relieved.

I shall not dwell upon calculous disease of the urethra. The calculus is only a temporary lodger there, and as it can often be felt externally by the hand there is rarely any difficulty about the diagnosis. Calculous disease of the prostate is also rare. I shall not complicate what I wish to be a simple matter by dwelling upon it, but call your attention to the commoner condition of calculus in the bladder. Here the pain is quite distinct in its character: it is felt at the end of passing water, because, the bladder being emptied, the rough surface of the stone is left in contact with the mucous membrane, doubtless that covering the neck of the bladder, which is unquestionably a sensitive spot. As soon as sufficient urine has trickled down into the bladder to separate the coats from the stone relief is obtained. Then the pain is felt at the end of the penis, within an inch of it, about the base of the glans. Furthermore, the pain is increased by movement; in other complaints it is not necessarily so. Put a patient in a rough-going vehicle, or make him jump from a step, or perform any rapid movement, and instantly he feels severe pain, probably at the neck of the bladder, but also at the end of the penis. In prostatitis, inasmuch as the neck of the bladder is involved, there is usually some pain at the end of the penis, which is a reason why chronic inflammation of the prostate produces symptoms much resembling those of stone.

With regard to calculus of the kidney, I have little to say about it here. Of course you have pain referred to the locality, right or left, not often to both kidneys; there is tenderness also, and much increase of pain on movement. It is usually on one side only, and perhaps more frequently on the left than on the right side.

One cannot, perhaps, say much about any characteristic pain in connection with tumours. They may be situated in any part of the bladder; may obstruct the urine more or less, and accordingly as they produce cystitis and obstruct the flow of urine pain will be experienced.

The next question is as to the character of the urine itself. Now, suppose your patient has told you that he has frequency in passing water, pain at the end of the penis and at the neck of the bladder, and that the pain and frequency are aggravated by movement. You may begin to imagine, "Perhaps the man has stone in the bladder, and I shall have to sound him." Two questions only have already put this probability in your way, and you interrogate as to the character of the urine. See how this carries you a step further. We recommence our list as to this inquiry. A preliminary remark, however, about examining urine. I do not propose to teach you here a systematic mode of doing this. It is not in my department, and would only be repeating that which it will be your duty to learn elsewhere, and I hope you will do so thoroughly. But there is this hint which I may give with respect to it. Whenever you want a specimen from your patient to examine, do not tell him to send you a bottle of it passed in the usual way, or you will get a mixture of often doubtful value. What you require is the secretion of the kidneys, plus only anything there may be in the bladder; you do not want it complicated with anything which may come from the urethra. Let the man pass two or three tablespoonfuls through the urethra first, so as to sweep out whatever may be there, which may be put into a separate bottle, and then you will get a specimen—at any rate one of which you will know the source. You will have the renal secretion plus anything in the bladder. Suppose the man has gleet or chronic prostatitis: there will then be a quantity of muco-purulent matter in the urethra. If all this be carried into one vessel with the urine, how will you determine the different products, and decide by the microscope or by the eye what has come from the urethra, what from the prostate, and what from the kidneys? You cannot do it; but if you get rid of the source of error by flushing the urethra, so to speak, and emptying the contents into a separate glass—say a wineglass,—then taking the bulk or remainder in a tumbler, you will generally have a sample of urine that you can do something with. If I felt disposed to indulge you with gossip, I could tell you stories of the gravest blunders committed by not attending to that simple point. I can at all events tell you that I have more than once known a learned practitioner treat a patient for pyelitis who had nothing but a profuse discharge from the urethra; how the urine had been sent twice a week in a scrupulously clean bottle, and because a quantity of pus was found in it, the patient, who had some symptoms corroborating that view, was treated during some months for pyelitis; how a surgeon at length found out that the whole of the matter came from the urethra, so that when the urethra was flushed into the first glass all the matter was there, and that the remaining urine was clear and healthy; and, finally, that the "pyelitis" soon disappeared under local treatment of the urethra. I do not know whether anyone else may tell you of that simple mode of determining this matter. I am always calling attention to it; and I will assume that in the future you will none of you make such a mistake as that I have mentioned.

Referring first to prostatitis, it is always associated more or less with shreds in the urine, which come from the prostatic part; and if you separate the urine as I have told you, you will find that the whole of the thick matter will be in the first glass, while that remains behind will be clear. How would it be with regard to calculus? You might have muco-pus in the first glass, but you would have more in the second from the bladder. Scarcely ever have you calculus in the bladder without having some muco-pus from the bladder itself. Occasionally, but very rarely, do I find a man with stone in the bladder having perfectly clear urine. Not commonly do I sound a man for stone who has clear urine, unless he has marked symptoms, because the presence of stone in the bladder almost always gives rise to a certain amount of cystitis, and there is deposit in consequence. If the patient passes shreds of thick matter in the first glass, and the urine left behind is clear, and has symptoms like those of stone, rely upon it he has chronic prostatitis.

The character of the urine in chronic cystitis is well known. There is at the bottom of the vessel a thick mucilaginous deposit, which does not issue in a stream, but falls out in a mass. In acute cystitis, the urine is cloudy, and there is a considerable deposit of pus. In stricture of the urethra, unless chronic cystitis has been set up, there is no deposit from the urine. Here the character of the stream is important. If, when the patient is passing urine, you see a very thin, small, spluttering stream, or urine issuing only in drops, you will know that there is an obstruction, most likely stricture; because, although in hypertrophy of the prostate you may have the stream much diminished, it will be a stream which falls downwards from the organ. In stricture, force may be brought to bear on the stream, so that, however small it may be, it is often fairly propelled; but in hypertrophy, in which the expelling apparatus is involved, the muscles cannot act, and therefore, however large or small the stream, it generally falls perpendicularly. In calculous disease of the bladder there is nothing to note about the nature of the stream. With regard to the débris of tumours found in the urine, the microscope sometimes, not often, throws light upon their nature. No doubt you may see cancer-cells in the urine, but it is most difficult to identify them. I have seen such cells declared to exist by good observers in cases in which cancer was not present. Young pavement epithelium is easily mistaken for them. Going upwards from the bladder, we may note pyelitis, more or less chronic—a disease in which the condition of the urine is only one symptom among many others which must be observed before arriving at a conclusion.

The next question is, "Do you pass blood?" and this will bring you very near indeed to an opinion on most cases—not quite, because in any case you may require to sound. In prostatitis there is often a little blood at the end of micturition, as in stone; in cystitis there is not necessarily blood, unless it is acute and far advanced; in stricture of the urethra there is not necessarily blood, and in hypertrophy of the prostate not necessarily. You may have it or not, often only as the result of instruments. It tells most in the question of stone. Just as in phthisis, a large proportion of patients have hæmoptysis at some time or another; so in about the same number of cases, say four out of five, there is some blood with vesical calculus.

I want you to pay particular attention to these questions, because they underlie much of what I shall have to say. What I have to add with regard to observation by the eye, by the hand, and by instruments, will come under each particular subject hereafter, and I will only briefly allude to it to-day. By the eye you observe mainly whether the bladder is distended or not, and you are assisted by palpation and percussion. You examine the perineum and scrotum also, with a view to extravasation of urine, perineal abscess and fistula, &c. And now we come to the question of instruments. Suppose such a case as that to which I have already referred, in which there is frequency of passing urine, pain at the end of micturition, pain on any considerable movement, thickening of the urine, blood passing occasionally, but more on movement, you regard it as highly probable that the man has stone. You cannot arrive at a certainty without instruments. You may have almost all these conditions in certain changes of the kidney and in renal calculus, and you cannot distinguish them unless you skilfully explore the bladder with a sound. When I claim great value for this instrument, quite understand that I am by no means desirous that in the case of every patient who comes to you and complains of some frequency in making water, or pain in the act, you should say "Lie down and let me pass an instrument." Perhaps the surgeon may be apt to abuse a little his power of passing instruments; it should never be done unless it is absolutely necessary. I hold that an instrument, *per se*, is an evil—a very small one or a considerable one, according to the manner in which it is employed,—and is never to be used unless there is good reason to believe that a greater evil is present which it may mitigate or cure. But when your patient has the symptoms named, you will be doing him an injury unless you resort to it. In cases of stricture the instrument is also necessary; and so in ascertaining the condition of the bladder, whether it is full or empty. A man may make water very frequently, strain hard, and be very certain that he has emptied the bladder, and be quite deceived. How can you tell? There may be a tumour simulating a distended bladder. You cannot know whether the bladder is emptied unless you pass an instrument. Many a man has had an instrument passed into the bladder, and a quart of urine has been found to be left behind, when his own sensations led him to believe that he had expelled every drop. We shall see more of this when we come to the question of retention and hypertrophy of the prostate.

As we are now on the question of diagnosis, I take the opportunity of showing you that the eye may be assisted to a certain extent by what is called the endoscope, which is simply an instrument that we have long been in the habit of passing into all the cavities of the body—the ear, the vagina, the rectum—for the purpose of bringing reflected light to bear upon the interior of those cavities. For some years it has been attempted to do the same with the urethra. It is sixteen years ago since I first saw the endoscope applied to the urethra. This was in the hands of Mr. Avery, of the Charing-cross Hospital. As I was turning my attention somewhat to this subject, he asked me to see some of his patients, and a new instrument he was then making. He showed me a long tube, precisely similar to this which I hold in my hand, with certain arrangements enabling one to see deep portions of the urethra. He showed me cases of stricture, but I do not think he looked into the bladder. He paid a great deal of attention to the subject, and the instrument was brought by him to a certain state of perfection; unhappily, however, his death occurred shortly afterwards, and the thing was lost sight of here. Various attempts have been made with the same object, long before and since, but I do not know that there is anything on this table very superior to what Mr. Avery showed. Within the last few years M. Desormeaux, of Paris, has paid great attention to the endoscope, and has perfected one of his own, consisting of a similar tube, but with different appliances. The various modes in which light is applied constitute the differences between the various kinds of endoscope. In all of them there is a tube of this description to pass into the cavity. Five years ago I had an endoscope of M. Desormeaux's, and exhibited it in the hospital—the instrument which you see here. Dr. Cruise, of Dublin, has brought it to greater perfection, and has produced a better instrument than we heretofore possessed. I may tell you at once, that if a man has a good and a tolerably practised hand, with a fair share of intelligence, I do not think he will gain a great deal by the endoscope; and if he has not, I think it will be of no use at all. There are some few cases in which he may find it of value; but do not expect that the endoscope is going to work any marvels in the diagnosis of surgical diseases of the urinary organs. In nineteen cases out of twenty you ought to be able to arrive at the necessary information without it. And it is not the easiest thing in the world to apply. As already remarked, a man should not be put unnecessarily to the pain and inconvenience of a sound or a catheter; but examination by the endoscope is a somewhat more irritating and tedious process. In certain exceptional cases, in which you are unable to arrive at a conclusion without it, you may employ it to some advantage. This patient before you had an exceedingly bad stricture of the urethra, which I cut internally last Tuesday week. He is now perfectly well. He could not pass a drop of urine before the operation, but now he is able to pass it naturally; and you will agree with me that a great deal must have been done last Wednesday week to make that change. I cut through the strictures deeply, and now we shall see whether we can find the cicatrices. I shall use Desormeaux's endoscope, illuminated by Dr. Cruise's lamp—You see we have now made a careful and prolonged examination. The urethra is of a more dusky red about the part which has been affected, but that is all which can be observed. Changes in the color and texture of the mucous membrane of the urethra and bladder are those which are most easily seen, and which are of the most importance to note. The orifice of a stricture may be sometimes seen, but the result is without practical utility. A stone in the bladder may be easily seen, or rather the small portion of it upon which the end of the sound impinges; but I have never gained anything by the sight. A calculus smaller than a pea may be easily found by delicate sounding—an audible note elicited from it; more easily than you can see it through the endoscopic sound. I may mention that no one has yet been able by its means to identify the veru montanum, and if you cannot see the veru montanum I think it is quite possible that minute pathological changes will often escape you.

Mr. Baker has been good enough to send up another and very simple endoscope, designed by Mr. Warwick, for exhibition. It may be used with ordinary gaslight or with sunlight. It certainly seems, on comparison, to effect nearly as much as the larger and more elaborate instrument.

## LECTURE II.

### STRICTURE OF THE URETHRA.

Last week, gentlemen, the subject of the lecture was rather general than special. In commencing this course, I shall take to-day the subject of stricture; and I do so because, if not really one of the most common of these disorders, it is often supposed to be so. Among the many complaints of this class, respecting which you may be consulted, perhaps none will be more talked of than urethral stricture. It does not follow, however, that stricture is really so common; in fact, it is much less so than many suppose. The word happens to have been popularised, and therefore, when a person experiences a little trouble in passing water, he is very apt to say that he has stricture. Certainly in three out of four cases in which persons do so, I find there is nothing of the kind, but often merely some temporary cause of irritation. Then it must be confessed that there is some confusion, even amongst the profession, as to the mode in which the word "stricture" should be employed. It is said—and I have said it myself, because I originally adopted the usual classification—that there are three kinds of stricture—

organic, inflammatory, and spasmodic strictures. Now, it would save some confusion if we employed this word for only one kind—namely, organic stricture. And what is organic stricture? It is a deposit of lymph round the canal of the urethra at some point, which, not allowing the canal to open to the stream, narrows the current *pro tanto*. There has usually been some chronic inflammation, most commonly in the bulbous part of the canal, and a deposit of lymph has taken place in the submucous and in the vascular tissues surrounding the urethra; and after this lymph has existed some time it contracts and forms fibrous bands more or less encircling the canal. We talk of the *contraction* of the canal; but this is due to a popular and not very correct notion of the matter, although it answers well enough for all practical purposes. You will do well to remember, in connexion with the pathology and treatment of urethral diseases, that the urethra is not an open tube, like a gas-pipe, for example, into which you can pour fluid. On the contrary, it is always absolutely closed by muscular fibres, and it is only when the tube is prevented from fully dilating to the stream of urine that it is strictured.

And this organic stricture is a permanent condition. Once acquired, it cannot be dissipated by any known means. It cannot be removed by absorption. You may dilate it, you may cut through it, but there it will always be. When a man once has true organic stricture, he has it for ever. If any exceptions exist, the rarity is so extreme as practically not to invalidate the axiom laid down. Whatever treatment you employ, there is always a tendency more or less to contract afterwards.

Now touching "inflammatory stricture" and "spasmodic stricture." Inflammatory stricture is merely a temporary, local inflammation of some part of the canal, which is then narrowed for the time. The patient is unable, as long as that inflammation lasts, to pass water, or at best with difficulty. The inflammation usually affects the prostatic part of the urethra, which is not, as you know, the seat of organic stricture. If you call this condition stricture, you may as well say that the throat is strictured when it is inflamed and the tonsils are swollen. We only speak of stricture of the œsophagus or gullet in reference to a condition which is organic, when by some deposit the passage is permanently narrowed, and we never speak of stricture there under any other circumstances. So with regard to Spasm. The urethra may be narrowed to a certain extent by spasm—that is to say, the water may be prevented from passing outwards from the bladder because there is some irregular action of the muscles around it. But it is only temporary; it does not necessarily imply any organic change; although it supervenes sometimes upon organic change, yet this spasm is not stricture of the canal. I will tell you what spasmodic stricture is. It is exceedingly useful as an excuse for the failure of instruments. It is a "refuge for incompetence." When you cannot pass a catheter, when you find it exceedingly difficult to get anything in, and in fact wish to desist, it is a convenient thing, and has always been so recognised, for the doctor to say, "There is spasm." Indeed, I believe he often "lays the flattering unction to his soul" that it does exist, although, in my opinion, it does not, or at least very rarely. "There is spasm," says he, "now in the muscles, and it will be prudent at present to desist from further attempts to pass an instrument." And no doubt when this is said it is so. Now, I do not think that you ought ever to fail in passing an instrument because there is spasm. Spasm may prevent the urine from going outwards; I do not know that it ever prevents the instrument from going in. In most cases it is failure of the hand, not spasm of the urethra. Still I cannot deny that it is a useful excuse—that it has a sort of foundation in fact, and may thus be often a better thing to say to the patient than anything else, when the instrument does not pass. But when we speak here of stricture in future we shall refer only to organic stricture, in the sense already described. All the mechanical treatment which I shall have to speak of will have reference only to that kind of stricture. In "inflammatory stricture" of course, you have no occasion for instruments, unless retention of urine is present.

Now, what are the symptoms of stricture? First, of course, there is the smallness of the stream depending upon the narrowed state of the canal. Whatever the narrowing of the canal is, in that proportion there must be a narrowing of the stream. Next, there is often some straining to pass water, corresponding to obstruction of the passage; and the stream itself is flattened, twisted or divided. This is accompanied by pain at the seat of stricture, and sometimes also over the pubes if there is any cystitis. Associated with this it is common to have a little discharge from the urethra; indeed, a gleet is often the only thing which the patient notices at first, and the surgeon, finding that this is not readily cured, uses an instrument and discovers stricture. Frequency of making water, as I told you last time, is not always present in stricture although it always is so when the case is severe and of long standing.

Supposing a patient to apply to you with all these symptoms, you endeavor to see him pass water. He will probably lay some stress on the fact that it is twisted or divided. Do not attribute much weight to the circumstance by itself, for a twisted stream often occurs when there is no stricture. It may be due to an alteration of the external meatus; for as the stream issues from the passage it is modified by the shape or rigidity of the external meatus, and after repeated inflammation there, the lips of the meatus may be thickened and permit only the exit of urine in a flattened and consequently twisted stream; and this is by no means an uncommon occurrence.

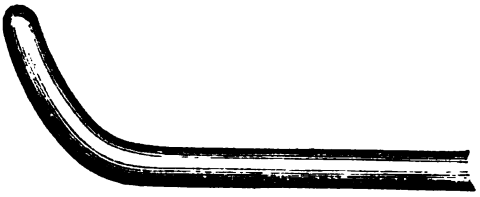
We now come to the important point of diagnosis. One rule is to be invariably followed: whenever you examine for stricture, take a fair-sized instrument, say No. 8 or 9. The patient may remonstrate, and will probably say, "That wont pass; it is useless to employ so large an instrument." Tell him that you do not propose to pass it, but only to discover where the obstruction is. For if you use a small instrument at first it may pass through the stricture, if one exists, without detecting it; but if the large instrument goes on easily into the bladder, you have the satisfaction of telling your patient that he has no stricture, and you look further for the cause of the difficulty. Whatever, then, a man may tell you, and however small the stream may be, take an instrument not less than No. 8 or 9, pass it gently down the canal, and if there is a stricture the instrument is arrested, and you will find the exact position of the obstruction. Notice the point where it exists—four inches, or five, as the case may be, because it will be useful afterwards in dilating to know its exact locality.

Now, in passing the instrument, you may meet with circumstances which may mislead you. I have spoken to you of error on the part of the patient, and I am bound to say that the surgeon who is not much practised in these matters may also be deceived. What are the sources of fallacy to which he is exposed? How is it that he sometimes fancies there is stricture when there is not? There are some kinds of practice in which you may be hereafter placed that do not afford the opportunity of often seeing this disease, and in such it is no great discredit to a man to think that he has found stricture when none exists. Not, of course, if he is a professed surgeon; then it will be a great discredit to him. But if he has very little to do with this kind of thing, he may encounter some difficulty in the urethra, and he may suppose, but erroneously, that it is due to stricture. Now, I want to guard you all against this; for though you may not all be operating surgeons, I want you not to leave any course of lectures which I may give, without knowing precisely what are the sources of fallacy, so that I may not hear of any of you hereafter making such a mistake as that to which I have referred. Let me remind you again of what was said about the urethra being a closed canal. I am not going to draw you a diagram of the urethra such as you see in anatomical books, in which it is represented in section as an open passage; for it is never in that condition except in the act of micturition. First, close to the meatus is a source of fallacy—I mean the lacuna magna. Then, here, five or six inches further on a diagram referred to, the bulb joins closely the membranous portion, and the canal, from being wide or dilatable, becomes very narrow. Lastly, there is a source o difficulty at the neck of the bladder. Those are the three points at which persons may be mistaken in passing an instrument, and form erroneous notions in consequence respecting the presence of stricture.

Now whenever you pass an instrument, do not let your thoughts revert to those anatomical diagrams representing the urethra as an open tube; bear in mind that it is simply a closed passage, so that nothing is easier in passing an instrument, if you are out of the line, than to find some obstruction in the folds or lacunæ of the mucous membrane, since it has more distensibility at some points than at others. Of course if it were symply an open tube there would be less difficulty in going on, but, as it is not so, the point is liable to hitch against the soft parts on one side or the other. First, as I have said, it is quite possible to get stopped at the very outset, which is embarrassing to a beginner, by engaging the point of the instrument in the lacuna magna. Whenever, then, you begin to pass an instrument, let your first thought be to keep on the floor, so as to avoid that obstacle. You wish of course, to pass it well for the patient. Perhaps he has had instruments passed before, and you desire to succeed at least as well as the preceding operator. Now there is nothing which a patient appreciates so much as the easy passing of an instrument. It is a disagreeable operation, and if you pass it more easily than other persons, you will probably retain your patient as long as he requires assistance of that kind. If you stick and get into the lacuna magna at the outset he infers you to be a bungler, and, perhaps, will not come to you again.

Now you see represented in this diagram the bulb of the urethra. The canal is more distensible at this point, and when you come to the deep perineal fascia the canal is much less distensible. Practically, therefore, it is much wider there than it is at the orifice, and when you get the instrument at that point it is apt to hitch. This is the place where almost all the false passages are made; the instrument is driven out of the canal down below the urethra, it being mainly at the floor that the canal is so distensible. The section of the corpus spongiosum is wider below than above; the texture is soft and spongy. The urethra corresponds in distensibility to the soft structure outside, and although the instrument gets smoothly down to this point it may not go on into the membranous portion. Now take care, at first, to get the point of the instrument so turned up as to avoid this lower part. Nothing is so good as a well curved instrument to avoid that obstacle. I am in the habit of doing this in the case of outpatients. I like to take a student who has never passed an instrument before, and I say to him, "Pass this bougie (a straight or slightly curved one) into the canal." He passes it, and invariably, when he arrives at the membranous portion, stops. I then take the same instrument, give its point this form, and then it passes immediately into the bladder. As the instrument goes in, it keeps close to the roof, instead of engaging itself in the distensible part of the bulb.

FIG. 1.



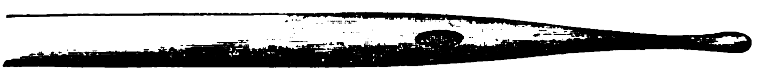
The last obstacle is at the neck of the bladder, and so common is it, that you often hear of "stricture of the neck of the bladder"—a thing which never exists. There never was a stricture even in the prostatic portion. "Stricture at the neck of the bladder" was a household word some years ago, and even now you sometimes hear of it; but there is no such thing. It is simply because there is sometimes difficulty in passing the neck of the bladder that it came to be regarded as a locality of stricture. In this case also a well-curved instrument is the best thing to go in. Let me recapitulate shortly the three sources of difficulty: First, the lacuna magna, which is avoided by keeping on the floor of the canal; then the narrow membranous portion at the bulb, which is avoided by keeping the point of the instrument well up; and the same with regard to the neck of the bladder.

I was going to read to you the notes of some cases of stricture in the ward upstairs, but I will not do so, because you have seen the cases, and know pretty well what they are; and I shall only refer to some of them as we go on. One has been treated by continuous dilatation, and another by internal cutting. Then we have several patients treated by common dilatation, and it is of common dilatation that I have to speak to you to-day. Suppose that you have passed a full-sized instrument, and found that it stops unmistakably, say, at about five inches, the most usual place; you will then, of course, have to pass smaller instruments to see what will go through it. You have diagnosed the fact of the stricture, and the situation; but you do not know the calibre. You ask the patient to make water. If he cannot do so, take a small gum-elastic instrument, say No. 1 or 2. You pass No. 1, and that perhaps goes through easily; then No. 2, which goes not quite so easily; then No. 3, which goes in tightly. No. 3, then, is the calibre of the stricture. Now you have all the main facts about the stricture that you want to know. The man's general condition, the frequency with which he makes water, the amount of chronic cystitis—all these are questions to be considered; but it is only with the mechanical part that I have to deal to-day. Lastly, we will assume that he has only one stricture; for a patient may have two, but this is exceptional. Now, what is the treatment? First and foremost, dilatation—dilatation always—dilatation without exception, whenever it will succeed. It is always to be tried first, because it is the simplest and easiest mode. If you find a man with a stricture ever so narrow or tight, by no means think of operating till you have tried whether dilatation will succeed. What is dilatation? A mechanical process of stretching this organised lymph, which forms bands round the canal at the strictured point. Now, suppose you have been able to pass No. 3 bougie or catheter rather tightly through the stricture and into the bladder, to be perfectly sure that all has gone right; then you say to the patient, "That is enough for to-day; come again in two or three days' time for a larger instrument." Now I advise you on such second or third day not to commence with the largest instrument previously passed. Having passed Nos. 1, 2, and 3 on the first occasion, you should now take Nos. 2, 3, and 4; and on the third occasion 3, 4, and 5; and so on: always beginning below the point you had attained on the previous occasion, making the smaller instrument a sort of *avant courier* for the larger one. Further, never let the instrument remain in the urethra; withdraw it at once: leaving it there simply increases irritation, and does not augment in the slightest degree the dilating power.

Now comes the question of the kind of instrument to be employed. The great principle which underlies all mechanical treatment of the urinary organs, whether for stricture or for hypertrophied prostate, for retention of the urine or for stone—the one great principle which must decide for us the question of the kind of instrument to be employed, is this: *all instruments are to be considered evils, more or less, never to be resorted to unless a greater evil be present.* The passage of an instrument of any kind into the healthy urethra must, *per se*, be a source of irritation. Try it yourself; and I advise you to do it, if you wish to pass an instrument well; for I hold that no man should pass an instrument for another until he has passed one for himself. Of course the amount of irritation will depend in great part on the manner in which it is passed, and on the kind of instrument employed. Let us consider, to use a commercial simile, that in the case of your patient there is "a debit and a credit side" in all treatment. You intend, beyond all doubt, to effect some real good—that is to the "credit side" of the account; but you cannot do it without making some irritation in order to gain your end —that is an entry on the "debit side." Be careful, then, that you constantly bear in mind the latter fact, and make it your business to diminish that "debit" as much as possible. Do not pass an instrument unless there is some good reason, unless there is some evil, for the sake of curing which it is worth while to incur a little irritation Acting upon this principle, you will choose such an instrument as you know by experience or otherwise to produce the least possible irritation. And this leads me to the question of the difference between solid and flexible instruments. Here I feel that I am treading on delicate ground; and I will tell you why. First of all, no one has been a greater advocate than I was some years ago of solid instruments as against soft ones, influenced by the traditions of this place, which are entirely in favor of the former. I can give you the reason for that. The great master-spirit of this place, who has been dead some twenty years or more, the man who gave the tone to the place, and educated almost all the elder men here—I mean Liston—declared his preference for the solid instrument in very strong terms. It is just twenty-one years ago since I sat in this room and heard him deliver a lecture on that very subject. His powerful advocacy of the silver instrument, and the contempt he had for others, were matters of notoriety. Starting, then, with such views, and regarding him—as every one does to a certain extent the man who teaches him well and fairly what he learns—for a certain time as an oracle, I was strongly in favor of the solid instrument as against the flexible. But what is much more valuable than any oracle, whoever he may be, is a large personal experience; and this has taught me that, beyond all question, the flexible instrument is the best—if only you know how to use it —for the treatment of stricture, and for all maladies of the canal, whenever it is available. I am so certain of this that I have no hesitation in saying that a great part of the success of any man who has much to do with this subject will depend upon the use of flexible instruments as against solid. No patient will ever allow a surgeon to pass for him a solid instrument if you have passed for him a flexible one as easily as you are bound to do. It gives him so much less pain, and produces so much less irritation. To continue my commercial simile,—it puts so much less on the "debit side" of your patient's case; you get so much more of advantage, and so much less of disadvantage. I confess, then, to a considerable change of opinion even since I published my first work on the subject; and I do this without the slightest shame or the slightest repugnance. I hold that the end of life in this world is not achieved without change in our opinions. You may rely upon it, with regard to any subject whatever—whether politics, or religion, or our own proper profession,—if we hold the same opinions at forty years of age as we did at twenty, and, perhaps, looking forward, I may say, if we hold the same opinions at sixty as we do at forty, we live to very little purpose. It is an error to look for a life-long "consistency" in matters of opinion from men who think for themselves in whatever department their teaching may be. You must expect them to progress, or they will be bad teachers, just as I hope you are all progressing now. I have said this because I know that so much might be quoted from what I held fifteen years ago in contradiction to what I am now saying. If I did not state this you might ask me why, having said so much in favor of the silver instrument, do I now say so much in favor of the other. You have my reason: it is simply that I have learned better.

There are two kinds of flexible instrument, the English and the French. Inasmuch as the French instrument possesses more flexibility than the English, I often prefer it. Perhaps it is right that I should qualify a little what I have said. I believe the flexible instruments are much better now than they were in Liston's time; and I think that if we had had the good fortune to retain him so long (without taking credit for making a shrewd guess), he would have changed his opinion too. This is the kind of flexible instrument much used in his time. It is called a bougie; and properly, since it is simply a kind of wax candle, and is, in my opinion, a very imperfect instrument. You can bend it into any form by warming, but it is a very inferior instrument to what is generally used now. The gum-elastic or English flexible instrument is very valuable on account of one quality which it possesses, and which does not belong to the French instrument—i. e., it will preserve any curve, when cooled, which you choose to apply to it under the influence of heat. If I want a small curve, I take the instrument, put it in warm water, give it the curve required, put it in cold water, and the curve is fixed or set. The French instrument is exceedingly flexible; you may wind it round your finger without difficulty. And it has another valuable character—namely, its peculiar tapering point. Now a tapering point *per se* is often undesirable in the urethra, because it is very liable to get into some lacuna. It would be an advantage if you could ensure that it did not do this, but this liability is provided against now very ingeniously by means of a little bulb at the end (see Fig. 2). The long tapering extremity guarded by the bulb insinuates itself through the healthy urethra, or through one not greatly contracted, in a most certain and easy manner. Such an instrument as that may be passed by the patient himself without difficulty. Indeed, it may almost be said to be "surgery made too easy." The merest tyro can pass it in nine cases out of ten, although he might not manage the tenth. It is one of the most extraordinary instances of English conservatism that these instruments are found in so few hands. They are, however, at last being made here. For years it has been necessary to send to Paris for them; but a demand is arising now, and they are at length manufactured in this country. If you will try the experiment on yourselves, you will find the *bougie à boule* traverses the urethra almost without your knowing it; and it requires no knowledge of the canal in order to use it. Now it may appear to you very heterodox, but I advise you, in passing an instrument, to forget all about your anatomy. You are taught it over the way, and it is most important that you should know it; but in passing an instrument forget all about the different regions. Think nothing about the deep fascia, the membranous portion, or the compressor urethræ. A solid instrument is especially dangerous in the hands of an anatomist; he will push it the way he thinks right, as if all urethras were exactly of the same form, and did not vary as much as noses do, or other features. This used to be the pretext for preferring the solid instrument: it was said, "You want to know exactly your anatomy, and pass the instrument accordingly." I pity the patient who has a solid instrument thrust into his body by a knowing man at anatomy. You want an instrument that you can use most delicately, holding it lightly between the finger and thumb, withdrawing it or changing its direction as soon as you are able to perceive an obstruction. Your hand is to be educated for the power of delicately perceiving the characters of the passage by means of the instrument within it; and rarely, if ever, are you to push a solid instrument in any given direction preconceived to be the right one. If you wish to get the largest amount of dilatation and the minimum amount of irritation, this is unquestionably the instrument for you to use.

FIG. 2.



There is one other point to notice with reference to French and English instruments,—I mean the gauges. Our numbers are from 1 to 12. Here is No. 12; and you generally consider, when you have reached that size, that you have completed the dilatation. In England we cannot be said to have a uniform scale; all our measurements are very arbitrary. One maker has one scale, and another another; and the Scotch scale differs by one and a half from the English; so that the patient who takes No 12 Scotch, takes only 10½ English. Our more exact neighbors over the Channel adopt the millimetre, and the number represents the exact size; so that when I have named the size, I have named the exact calibre or magnitude of the urethra. Instead of 1 to 12, the French have 1 to 30. They begin lower, and go higher than we do, and the steps are more gradual. In this way irritation may be lessened. You may pass, a No. 4 English very easily, and a No. 5 with great difficulty, or not at all, and an intermediate one might be the proper size. Their numbers 3 to 21 are about equal to our 1 to 12; showing you at once how much more gradual the range is. No. 1 is one millimetre in circumference; No. 2 two millimetres, and so on: so that the increase in size is uniform as well as gradual. If I have a patient who will take No. 21, I know that his urethra admits an instrument twenty-one millimetres in circumference, and of course seven in diameter.

I advise you in this as in other matters, to be cosmopolitan in your views, and to adopt improvements from all quarters.

I have told you that simple dilatation consists in passing every two or three days a larger instrument, until you reach the highest. In many cases all goes on smoothly from the beginning to the end. Then you teach the patient to pass the instrument for himself, and he does so afterwards once a month, or once in six weeks, to maintain a sufficient calibre.

I will touch but lightly on "continuous dilatation," or the tying in of the instrument. There is a patient up-stairs, who is now undergoing it successfully. You have tried, we will suppose, the simple dilatation, and have not made the amount of progress desired, or, perhaps, the patient's avocations may make it necessary to have a more speedy cure. In either case you may say, "If you can give me ten or fourteen days in your room, not necessarily in bed, but on the sofa quietly at home, I can almost certainly bring you from the smallest number up to the highest,"—that is, by "continuous dilatation." In the first case the instrument is simply introduced, and at once withdrawn; in the last case you tie the instrument in, and allow it to remain for several days. You tie in a small catheter, which if possible is to be gum elastic, and so that it only just enters the bladder. And you should always take care that it is small enough to pass easily, so that it lies loosely in the canal. Those three conditions being granted, this is one of the safest and best modes of treating stricture. The patient up-stairs has finished the process, and to-day the house-surgeon tells me that he passed No. 11 with ease. The man has not now the slightest pain or frequency of making water, and he has not been so well as he is now for twenty years. He says he is as well as ever he was in his life; he came here in as bad a condition as it is possible to conceive. He had been treated as an out-patient, and making no progress, I advised him to come in, and try continuous dilatation. I repeat, three conditions are necessary to success: You must have a flexible instrument; the point must not be far in the bladder, and it must not fill the stricture, because, remember, it is not a mechanical process; you do not want to distend the stricture as you would a lady's glove, but you let the foreign body lie in the passage. If you leave a No. 1 in for a sufficient length of time you will be able, when you take it out, to pass No. 10, without using the intermediate numbers. You do not leave it there because the stream of urine would soon wash it out, and it is necessary to put in a larger one to fill the canal a little more. If when you change the instrument you put in one quite as large as the stricture will admit, you produce pain and irritation, and infringe the principle I have laid down, so that the progress is less satisfactory. In continuous dilatation, as well as in simple dilatation, you adopt the plan which gives the least amount of pain and irritation to the patient, putting as little as possible to the debit side, and as much as possible to the credit. The operative proceeding to be applied to the treatment of stricture I shall speak of at our next meeting.

## LECTURE III.

### STRICTURE OF THE URETHRA.

You may remember, gentlemen, that at the last lecture we commenced the subject of stricture, and considered the treatment by "ordinary dilatation" and by "continuous dilatation." You will see at once that this presupposed that an instrument passed *into the bladder*. It is, of course, assumed that in treating a case by means of dilatation, whether continuous or simple, the instrument has fairly passed through the stricture, otherwise the stricture is not dilated. But all cases of stricture are not so easily disposed of. It often happens that at the first, second, or even third trial you do not get the instrument into the obstructed part, or only partially so; or it leaves the canal altogether and goes into a false passage. At all events the instrument does not go through the stricture, and onwards, as it should do, into the bladder. Now that is a condition of difficulty which opens a new subject for us to-day. We have now to deal with more difficult cases, those in which all your care, and experience if you have any, are needed. It was said by Liston, that of all operations in surgery there were none so difficult, none which required so much patience and care, as the passing of a catheter in an obstinate and very narrow stricture. That statement is in his last edition of the "Practical Surgery" (p. 476), and you can scarcely have a higher authority for the fact there mentioned.

Now there is one word which is often used to describe stricture, to which I take a great objection, and I think the sooner it is expunged from the vocabulary of surgery the better. Such a stricture as that of which I now speak is often said to be "impermeable." What is impermeable stricture? Why, first, it does not denote a quality necessarily inherent in the stricture at all, but rather the quality of the surgeon. For, you see, a stricture may be "impermeable" as regards A, but not "impermeable" as regards B, who may pass the instrument easily enough. But, secondly, it is a contradiction in terms. Stricture is *narrowing* of the canal; it is not an obliteration of it. There must be an opening, and if there be an opening there must be room for an instrument; it cannot be "impermeable." It is only a question of the size of that instrument, and of skill or patience in the management of it. The stricture always admits urine, more or less in quantity, to pass through it, and I maintain the truth of the axiom first enunciated by Professor Syme, that whenever urine passes outwards through a strictur, an instrument ought with care and perseverance to be got in. I advise you to believe in that doctrine, not that it is true as regards yourselves at the present time, for I will assume that you have not sufficient experience to be able to pass an instrument through a stricture in all cases. If you are able to do so I can only say that you are quite out of place here, and need not come to learn. It is exceedingly difficult to pass an instrument in some cases, but after a considerable amount of experience you will find that there are very few in which it cannot be accomplished. In the treatment of stricture, when you have really a difficult case before you, it makes all the difference whether you act under a belief that it is your own fault if you do not succeed, or whether, on the other hand, you hold the dogma that there are a certain number of cases which are "impermeable" to all surgeons. The man who holds the latter belief will be quite certain in some cases not to succeed, whereas, probably, the man who believes that in all cases an instrument may be passed with time and patience, will be very likely to succeed in all, or at all events will succeed better than the other. "Impermeable" stricture is not heard so much of now as it was twenty years ago. It was fully believed in then, and operations were frequently seen in the hospitals for it; but I will undertake to say that they are very rare now. The operation consisted in passing a large instrument down to the stricture, and opening the urethra upon it from the perineum, and then getting through the obstruction, or by it in some way, if the operator could, into the urethra beyond. It was very seldom that the true passage was followed, but somehow, by dint of cutting, a way was made for the instrument to go from the urethra before the stricture, to the urethra behind the stricture, and it was not a very successful proceeding. That was acknowledged in all books at that time as an operation for impermeable stricture, or as "perineal section." I have never had occasion to perform it, and I believe the necessity for it, if ever existing, is excessively rare. I have already given Professor Syme credit for having first enunciated that doctrine, and he has stoutly maintained it, to the great advantage of patients who suffer from stricture.

But you may have complete obliteration of the urethra, which, as before said, is not stricture. This is very rare; but it occasionally happens, and chiefly after injury in the perineum, as by the breaking of a vessel, or any wound there cutting into or across the urethra. If the opening remains pervious, and gives exit to all the urine, a cicatrix occurs involving the anterior opening of the divided urethra, which is then closed altogether, and so the canal is obliterated in front of the fistula.

Now how are you to deal with a really narrow and difficult stricture? I will assume that you have a case in which you have tried to pass an instrument three or four times, and have failed. The first thing to do is to see the patient make water. Your failure to pass the instrument may not have arisen from narrowing of the urethra: there may have been some false passage made. It may be that there is no stricture at all. No greater failures are made than with those patients who have little or no stricture, either from the surgeon not knowing well how to pass the instrument, or from there being a false passage into which he gets, so that he does not enter the bladder at all. You first of all see the stream of water, and judge by that what size of instrument is to be used. And always let the instrument correspond with the size of the stream which you see. It should correspond in this way, however,—it should be a little smaller. You know, of course, that when a current of water passes into a narrower passage than that in which it has been flowing the stream is more rapid than before, and when the passage becomes larger it flows slowly again; so that the size of the stream as it flows from the orifice is not to be taken as the precise measure of the calibre of the narrowest part of the canal. You should, therefore, take an instrument somewhat smaller than the stream. There is a patient in No. 10 ward, whom some of you have seen, who does not pass a stream at all; urine is only a succession of drops. How small, then, in such a case must be the instrument that is employed. Then there is one very important thing to be considered in connexion with small instruments—namely, that no more dangerous weapon can be introduced than a very small catheter, unless corresponding care, delicacy, and gentleness are exercised; indeed, it is impossible to be too careful in employing it. You see how easy it is with such an instrument as that which I hold in my hand to get into one of the lacunæ or into any false passage, or to drive it through the soft walls of the urethra into the tissues outside: therefore it should always be used with the utmost lightness of hand. You must not hold this slender catheter tightly, resolving to get it through any obstruction; but it must be held so lightly that if it meets any undue resistance it will slip through the fingers directly—anything rather than wound the urethra. I certainly cannot advise you to try such an instrument until you have had some fair amount of practice with a larger one. In cases of difficulty, a small gum instrument is often not of great service. I have been advocating gum-elastic instruments as the rule; but if you have to deal with a very tight stricture, and fail to pass the flexible catheter after one or two trials, you must use a small silver instrument.

Now, one word upon the subject of using force. *Under no circumstances whatever should force be used in the introduction of an instrument through a stricture or into the bladder.* That is my dictum to-day. Years ago it was matter of discussion how much force should be employed; more years ago still you heard of people using instruments with great violence. Now I am perfectly satisfied, and I believe all modern surgeons will tell you, that no force is to be employed. It is very difficult to say what one means by force; but what you are to understand is, that no kind of weight or pressure is to be put on the instrument which can by any possibility carry it out of the canal; and very little force will do that. The more difficult the stricture the less are you to dream of using force. You will remember that the urethra is possibly of full size up to the point of narrowing, and hence it may be very difficult to find the opening. If you use force, you will perhaps perforate the soft walls on either side, and this done, you have increased your difficulties; because, if you make a false passage, the point of the instrument is much more likely to be caught in it than to go through the strictured part.

Remember, also, that a stricture in the course of a canal does not necessarily follow the exact direction of that canal. It may be a little tortuous; may be on this side of the axis or on that, not necessarily in the middle. You may see this sometimes in the dead body; and you may infer it from experience on the living. When you have to deal with a very narrow stricture, take a small instrument which you intend to guide. Do not rely upon mere groping to find the orifice. First of all it is exceedingly dull work to be constantly groping. You should always adopt some method —any method you please, provided that it shall seem to you exhaustive of the different modes of exploring the urethra. Some of you saw the plan I adopted with a patient to-day; and I believe that to be the best plan. You should go systematically to work, and slide your instrument from the orifice of the urethra down the one side or the other. This diagram will show you what I mean. If I go down on this side I shall probably not get into the stricture; but if I slide down gradually on the other I shall probably get the instrument in, because, you see there is less obstruction on that side. Begin, then, by the roof. The roof is the firmest part, and, by following it, will be most likely to carry the point in. The floor, on the contrary, is the softest, loosest, and most spongy part; and will be most likely to yield to the instrument, and give way. If your first effort does not succeed, take the right side; if that does not do, take the left; if that does not do, take the floor. I know no other method so calculated to help you through a difficult stricture. If you are very careful, you may make the attempt in this manner for twenty or thirty minutes without doing any damage; but if you find the patient suffering much, if you are losing patience, give it up, or you will probably make a false passage, and increase the difficulty tenfold.

So much with regard to introduce an instrument into a very narrow stricture. Now suppose you have a false passage. Of course I will assume that you have not made one,—you will be much too careful for that; you are perhaps not the first surgeon who has seen the patient; some one else has seen him before you, and made a false passage. There is that case up-stairs in which the man has made a false passage himself, confessedly, notoriously, because he has taken a large instrument and pushed it completely *into the bowel.* He has used a No. 9 or 10 bougie, and treated himself for stricture. He is certainly an illustration of the old adage that "he who treats himself has a fool for his patient." He has thrust the bougie out of the urethra through all the tissues between it and the rectum. When he was in the out-patient room he simply complained that when he passed the catheter into the bladder he brought out fæces. The truth is he never went into the bladder at all. I suspected the cause, laid him on his back and verified it, and, as you know, he is now in my ward upstairs. I have made two prolonged attempts, and I carried a No. 1 silver catheter into the bladder to-day. You can easily conceive how difficult that false passage must make it to get the instrument in. It is only to be done by being very careful in avoiding the side on which the false passage is. A false passage commences usually on the floor, and no doubt for the reason mentioned, the structures below being looser, than those above. When you examine a patient with a false passage, you probably find the instrument passing up to its very end, and no urine flows. Hence the notion that there is stricture at the neck of the bladder. When the instrument is thus passed, put your finger into the rectum, and you will know instantly whether there is a false passage; for if so, there are only the coats of the bowel, which are very thin, between your finger and the instrument, so that you feel it very distinctly. But if the instrument is in the right passage, you feel the whole thickness of the prostate, not always very considerable, between it and your finger, still quite enough to show that you are in the right path. It is almost always in the bulbous portion that it leaves the urethra and gets under the prostate. What you are to do, then, is to withdraw the catheter two inches or so, then pass it on again, keeping as close along the upper part of the urethra as you can, ascertaining by means of the finger that the instrument is not passing into the old route. It will be very likely to do so, because it is much more easy to get into a false passage than into the right one. I have devoted as much time to this subject as I dare. I have only given you these general hints: you will arrive at the rest yourselves by practice. There is very often a case of false passage in ward No. 10, and I wish you sometimes to verify the position of the catheter when it is in a false passage; to observe how very little tissue there is between the finger and the instrument. Then when it is properly passed, you feel the thickness of the prostate intervening. You can only appreciate this by the touch, and will learn very little more by talking of it.

One word with regard to the injection of oil. When you have a very narrow stricture to deal with instead of oiling the instrument, it is as well to throw half an ounce or an ounce of olive oil into the urethra, holding the syringe well round the meatus. It is easy to insinuate half an ounce or an ounce of oil through a very narrow stricture. It lubricates the parts, and sometimes the urethra is distended with the oil, so that, if you can cleverly retain it with the finger and thumb, you may introduce the instrument when you have been unable in any other way. This is worth noting. It does not do well when there is much bleeding or the tissues are torn, but when it is not so the plan is sometimes useful.

Now suppose that, following these hints, you have carried the instrument through the stricture; there is a sort of grasp which is quite unmistakable. That is a sensation which you are always content to have, because, feeling the catheter "held" by the stricture, you know you are through it. But that very "grasp," which you are so satisfied to have, makes it less easy to manipulate the point of the catheter after it is through the stricture, and you have sources of danger to encounter in the urethra beyond. Thus, the mucous membrane, being often reticulated, with dilated lacunæ, it is easy to engage the point of the instrument in one of those, and make a false passage. Be careful never to use force in this stage, and, even after you are through, to get gently and quietly into bladder.

Let us pursue the case one step further. Suppose you have got your catheter in at last after much difficulty. Do not pull it out. You will say: "I had trouble enough to get it in; and now I will tie it in at once." It is safe to do that, although it is a metal instrument; and you may keep it forty-eight or seventy-two hours before removing it. Do not be in a hurry to do that. You will be excessively disappointed to be obliged to repeat your task; and it will be very disagreeable to the patient. Keep it in about three days; and then you will be able to change it for a gum-elastic instrument. You then go on with "continuous" dilatation, as already described, increasing the size of the gum catheter from time to time. You get up, perhaps, to No. 10, and tell the patient, "This is a great point gained;" but in ten days or so, to your great disappointment, the stricture will admit nothing larger than No. 2 or No. 3. Now it is clear that you have to do with what is called "resilient" or "contractile" stricture. It is not a question of calibre so much as a question of contractility. The narrowing has gone back almost to that condition in which it was at first. You can now only get in, say, No. 2. It is useless again to attempt dilatation. This is precisely that kind of exceptional case for which you reserve other means of treatment. Understand that you may have stricture very narrow, and be able to dilate it, and the dilatation shall be permanent. On the other hand, you may have stricture which will admit even No. 5 or No. 6 catheter easily, and yet the man will scarcely make a drop of water. We had an instance of that in the ward the other day. No. 6 instrument was passed; but the man could make no water until I had operated. These contractile strictures have been the plague of surgeons from time immemorial. If you go back to old records of surgery—how far back?—some hundreds of years—you will find that these cases have exhausted the wits of surgeons to the present day. All kinds of things have been used in order to overcome the difficulty. I cannot tell you half of the matters which have been put into the human urethra. I suppose the human stomach has been made to receive more abominable things than any other receptable in or out of the human body. But if you consult the old surgical authors, or even some modern books, you will see that the urethra has been used nearly as roughly; and that is saying a good deal. Verdigris, savin, the salts of all sorts of metals, everything that could irritate, or that could be imagined to be disagreeable, has been employed to cure these unfortunate strictures. At the present moment I need not tell you that some surgeons have employed nitrate of silver and caustic potash—not at all mild remedies either of them. Now the whole question of chemical irritants, as applied to stricture, I shall dismiss with the following words: I believe them to be unnecessary, undesirable, and dangerous. Most modern surgeons, both in this country and abroad, have pronounced against the use of caustics and chemical irritants in the treatment of stricture. I shall not pursue that question further.

Then what have we left? Several mechanical modes: we may rupture, or overdistend, or cut these unyielding and contractile fibres, which constitute the stricture. Urethrotomy, as it is called—division of the strictured urethra by some form of knife,—is, perhaps, all things considered, the most universally employed in such cases. Now there are two kinds of urethrotomy—external urethrotomy and internal urethrotomy: the external applied from the perineum; the internal, by means of the knife or some other instrument applied within the urethra.

I speak first of internal urethrotomy. There are two modes of doing it. You may cut the stricture from before backwards, or from behind forwards, the latter being the method most commonly adopted.

First, suppose you have a stricture at or near the orifice—a very undilatable part. You get in an instrument like that which I hold in my hand—a small bistourie cachée; project the blade and draw it outwards, dividing the obstruction. Nothing can be more simple. By means of a screw, you can raise the blade to a small or to a large extent. It should be used so as to make a rather free incision, which is perfectly safe. As a rule, the nearer the stricture is situated to the orifice of the urethra, the more necessary is it to cut, and the safer is it to do so. The further the stricture is from the external meatus, as a rule, the less necessary it is to cut, and there is rather more risk in doing so. All strictures at the meatus, and within, say, about three inches of it, which have resisted dilatation—and these generally do so—should be divided. You can dilate them, but the effect is temporary; and you can divide them with ease and perfect safety.

Secondly, with regard to strictures at a distance of five inches, the reason why it is somewhat less safe to cut them is on account of the large amount of erectile tissue at that point. In my own experience of sixteen or seventeen years of these operations, I have never lost a case by either internal or external urethrotomy, either in the hospital or out of it, and I have had a great many cases; I cannot say how many,—perhaps a hundred. Sometimes there may be a dangerous amount of fever, and, rarely, cystitis; much depends, I need not say, on the way in which the thing is done. External urethrotomy is usually known as Syme's operation. It is necessary always, in that case, to pass a small grooved staff or director through the stricture, to cut down upon the perineum, as in median lithotomy, and divide the stricture completely by cutting freely into the groove of the staff. That is very seldom done now. It was much done twelve or fifteen years ago; but other means have superceded it. Occasionally the opetion is still performed, chiefly when there are perineal fistulæ which require to be laid open. After doing it, a catheter is tied in for forty-eight hours, and an instrument to maintain a good calibre must be passed from time to time afterwards. Now for internal urethrotomy in these cases of stricture in the bulbous urethra, this instrument which I hold in my hand is a very good one. I used it for a case here about a month ago, and the result was simply perfect. It has a small bulb at the end, concealing a small sharp blade within, which you pass through the stricture. You can then, by means of the bulb, feel exactly the position of the stricture. Having done this, you unsheath the blade about half an inch beyond the stricture, to the extent required, and draw it forward, dividing the contracted part freely. In that case, also, you should tie in a catheter forty-eight hours, and after that pass an instrument every third day, then every week, and so on. Here are instruments for cutting from before backwards, and of various kinds; but I prefer the others as a rule.

We next come to the mode of rupture; and here I will show you an instrument which bears the name of Mr. Holt, of the Westminster Hospital. He has brought the instrument into notice and the mode of using it is his own. It was invented by M. Perrève of Paris, more than twenty years ago. He used it mainly, but not altogether, for simple dilatation: Mr. Holt uses it otherwise. He passes it through the stricture, and then, instead of passing at different times a succession of tubes of gradually increasing calibre, he takes the largest tube at once, and forces it down the urethra along the central guide, so as at one stroke to split everything that happens to obstruct the passage of the instrument. Mr. Holt does not put in an instrument afterwards. When the operation was first introduced, I was strongly repelled by the violence of the proceeding; but I examined some of Mr. Holt's cases with him at the Westminster Hospital—now some ten years ago,—and was surprised to find how few bad results followed. Hence I tried the plan, and use it occasionally for a urethra which has some two or three contracted points—a condition rarely met with,—so as to deal with them all with certainty. Rupture, however, is too rough a mode, in my opinion, for most cases; and I prefer to carry a fine blade carefully through the fibres of the stricture, and believe it to be the best, and the most enduring in results. But the popular sentiment about a knife cannot be ignored. The British public is not partial to a sharp edge, and is glad of almost any substitute—a feeling one can quite understand. So that it is not always possible to do the best thing, and we have to select that which is next best. You will, then, probably find the proceeding by rupture a useful one when dilatation has failed. That operation suggested to me some years ago a different method—namely, one which I have called "over-distending" the stricture. It is simply this. Here are two blades, as in the instrument used by Mr. Holt, but these two blades can be separated for a considerable interval at one point, and as slowly as you please. In practice I do it very slowly, so as to rupture as little as possible, and to over-distend as much as possible, the structures which form the obstruction. There is this fact also to be noted: I wish you to remember that the bulbous part of the urethra—the usual positions of stricture—is also the most distensible part in the natural condition of the canal. Supposing the external meatus to be about No. 12 (English scale) in calibre, the bulbous urethra admits at least No. 20 or 24. Hence it follows that no kind of dilatation or operation which is limited in extent by the size of the external meatus more than half restores the urethra which has a stricture at the bulb. It is on this account that I distend the contracted part to at least this, or even to a larger size, by means of the instrument in question. I have now used it many times, and it is certainly attended with good results. It is to be used only for strictures within the bulb. I have heard of its being employed for those within three inches of the meatus: it is a mistake to use it for such, which as I said before, ought to be cut. This operation requires more care than the other. Mr. Holt's operation needs no care after the instrument is once in place; it is extremely easy to use it. If you once get the instrument in correctly, a single impulse of the hand forces the tube through; and it is certainly tempting on that account. And for a considerable time afterwards you have good results from these operations. I think, however, that internal urethrotomy gives results which are more enduring than any other; but it is infinitely more difficult to perform properly, and, without doubt, it requires a practised hand.

Briefly let me, at the close of this subject, remind you that in all cases of impeded micturition, attention to the general health often aids in a considerable degree to mitigate the local troubles. Do not overlook the state of the digestion. If this is unsatisfactory, if the bowels are unduly constipated, the troubles of the bladder and urethra will be much increased; and frequently it happens that a mild mercurial, followed by a dose of Glauber's salts, or of Friedrichshall water in the morning, gently unloads the liver and bowels, and greatly relieves the most distressing symptoms.

There is only one other word I have to say: do not be partisans of any single method. You hear one surgeon say, "I always follow such and such a method; there is nothing like it." Or another, that he always adopts the proceeding of M. Civiale, and a third that of M. Maisonneuve, and so on. There has been great fertility in inventions of this description, especially in Paris, and you may see from several of them very excellent results. Do not confine your selection to any one method, whether I or anyone else recommend it; but have every resource at your disposal. If you have much to do with stricture, or with such complaints, I can only tell you you will want all the resources within your reach. Consider them carefully, and select for each individual case that method which appears in your judgment to be the best adapted for it.

# Lettsomian Lectures

ON THE

# DIAGNOSIS AND MANAGEMENT OF LUNG-DISEASES IN CHILDREN.

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## LECTURE I.

Mr. President and Gentlemen,—It is not possible for me within the compass of three lectures to treat systematically of a subject so wide as the lung-diseases of children, nor is it necessary that I should attempt any complete account of them to an audience that has examples of such diseases under its daily observation. My object will be rather to present to your consideration some of the difficulties that encounter the practitioner at the bedside—first, in regard of the recognition, and, secondly, as to the management of these disorders in the period of infancy and childhood. I propose this evening to deal with some points in the diagnosis and treatment of the *tuberculous* group of lung-diseases in children.

As evidence of the difficulty that attends the investigation of these complaints I may state that in a single case-book of mine at the Children's Hospital, for 203 cases in which we believed that we definitely recognised consumption in the lungs, there were 45 cases in which, on a first examination, a certain diagnosis could not be made; and a very experienced and conscientious clinical assistant of the hospital has recorded his opinion of the difficulty by setting a query against two-thirds of the cases in which he believed tubercle to be present. And I may appeal to the experience of my hearers whether they do not constantly find themselves unprepared with a positive answer to the anxious question, "Do you think the child is consumptive."

Doubt and difficulty in answering this question arise from two separate sets of considerations. On the one hand, the little patient may really have tubercle in its lungs; but, through the absence of many of the means of diagnosis that assist us in the adult, we may not be able to affirm the fact. On the other hand, "consumption" in its literal sense of wasting may be intense, and a number of symptoms may be present which in the adult we should at once set down to phthisis, and yet not a particle of tubercle may exist in that child's body.

Among the signs that have value in the phthisis of grown people, but which are absent or of equivocal signification in the child, are firstly to be mentioned the whole class of subjective sensations of which little or no account is rendered by the child; secondly, it is only in older children that expectoration of any sort is presented for our examination, and hæmoptysis, one of the first symptoms for which we enquire in the adult, is rare in children. Of the 203 cases I have mentioned, only two had spat blood at the time they came under observation. Thirdly, owing to the more acute course of the disease in early life, those symptoms which indicate softening and cavity of the lung are seldom met with. Perhaps it is for the same reason that night-sweats are uncommon in the phthisis of infancy. Next, the results of physical examination of the chest are frequently equivocal and obscure. Flattening of the chest is only noticed in the rare cases where cavity is formed, or where the lung has become adherent to the wall of the thorax. Auscultation gives but few, and—in cases of early or rapid phthisis—only uncertain results. The most reliable evidence it affords is feebleness of respiratory murmur, with more or less coarseness of sound up to actual bronchial breathing; but even this is apt to be closely simulated by echo from the child's throat. Prolonged expiration is seldom observed, but notable division of the inspiratory sound is more common. Yet the disease may be considerably advanced, and be even threatening speedy death, without other auscultatory signs of it than rhonchus more or less coarse, which would be quite explicable by bronchitis alone. Percussion, though giving more important evidence of the state of the lung, is exposed to many sources of error from which the use of this means in the adult is exempt. Unless the child be in a quite symmetrical position, without constraint of either side, it is impossible to get any valid result from percussion. At one moment the left side seems duller than the right, at another the right is duller than the left, just as the one or the other side of the chest is prevented by position from expanding so thoroughly as its fellow. In the same way, unless the two sides of the chest be examined at the same stage of the respiratory act, the results of their percussion are absolutely incomparable. Now, to make a young child modulate its breathing for our convenience is out of the question, and I therefore use the plan of percussing each spot about which I want accurate information, several times over, through the different phases of inspiration and expiration, and thus obtain a complete average notion, as it were, of the resonance and resistance of that spot before going on to another with which I wish to compare it; then percussing the second spot in like manner. If a child is moderately thin and lying quietly, I prefer percussion practised immediately with the pulp of the finger over the clavicle or rib, to the use of the left hand finger as a pleximeter. The resiliency of the spot percussed is thus more perfectly appreciated; and in comparative percussion the risk of altering results by not fitting the left forefinger into exactly corresponding places on the two sides of the chest is avoided. Another observation concerns the normal difference between the two apices. In children under seven years old this seems to me to be almost the opposite of the difference habitually observed in the adult. From a large number of observations I am disposed to say that, if there is any difference between the two apices in a healthy child of this age, it is that the left side is commonly a little duller than the right. If, as I think, a greater importance attaches on this account to slight degrees of dulness at the right apex, the point may be of some importance clinically. In an adult who has a tuberculous cavity in his lung, the peculiar percussion-note known as the "cracked-pot sound" is very significant. In a young child, this sound is absolutely worthless as evidence of cavity; for a perfect sound of this kind may be got by sharp percussion under the clavicle of many a healthy infant if it should happen to be holding its mouth open, and is almost certain to be elicited if the child be a rickety, though otherwise healthy, baby. And, lastly, when percussion and auscultation have established the existence of consolidation in the apex of a lung, the nature of this is open to various interpretations in the child that we scarcely need to consider in the adult; and this arises particularly from the frequency of chronic and lobular pneumonia of the upper lobe in children.

Two chief lessons in diagnosis seem to be yielded by these considerations. The one is, that a single observation of the chest is extremely apt to be misleading, and that repeated examination is wanted for the elimination of what is temporary and accidental before we can be sure of the validity of physical signs in the chest of a child. The second lesson is that, inasmuch as we have none of those conditions in the child which in the adult may be pathognomonic of tubercle, it is upon a consideration of the total phenomena of a case, and not upon physical signs or general symptoms by themselves, that we shall most safely rely for our recognition of tubercle in the lungs of children. Still it will be surprising to no thoughtful practitioner, who considers the many causes there are for a child wasting and the scanty physical alterations that are caused by miliary tubercle scattered through a lung, that there remain many children, apparently consumptive, as to whom we ought not, for some time at least, to have a positive opinion whether they are tuberculous or not.

The nature of the considerations which determine diagnosis of tubercular phthisis in the infant may be best set out by the story of a few illustrative cases. Here is an instance which has its parallel in the frequent experience of most of us.

A few weeks ago a child was brought to me who had been for five months under the care of a physician who said he was consumptive, and who had ordered him cod oil and steel, meat and wine and had advised change of residence for him. He is the child of healthy parents, and was suckled by his mother till he was eighteen months old. He got his first teeth at seven months, and at a twelvemonth old he could run about. He had had none of the ordinary maladies of childhood, but eight months ago he was "taken off his legs" by his present illness, and he was found, at the age of two years and two months, intensely emaciated and suffering from a cough, which however, had only lasted a week or two. The child had all his teeth, and gave no suggestion of rickets except that his belly was big and the lower ribs bulged outwards. His chest was of a squarish shape. The apices of both lungs were slightly dull, but there was no dulness behind the sternum to indicate that the bronchial glands were notably enlarged. All over the chest the respiration was loud and harsh without any special quality at the apices, and there was a small amount of ordinary sonorous rhonchus. Posteriorly the lungs were clear to almost their extreme bases. The tongue was natural, but diarrhœa was frequent. Examination of the abdomen showed that the mesenteric glands were not enlarged, that the spleen was of natural size, and that the liver projected two inches below the false ribs. Here was a child with a number of general and some local signs of tubercle in its lung, in whom, however, we could exclude notable deposit in the lymphatic glands.

Let me here digress for a moment to quote two cases that illustrate the point which the diagnosis has now arrived at. The one is that of a little child whom I lately saw with a practitioner in Bloomsbury; it was three years old, rickety, and after two months ailing, with no chest symptoms and not much emaciation, it died somewhat unexpectedly in convulsions, and the lungs and other organs were found stuffed with miliary tubercle. The second case is quoted from Dr. West. A child of ten months old (like the former one, being rickety) emaciated rapidly, began to cough without previous catarrh, and "her case seemed to be one of bronchial phthisis." She died in the course of a few months, and on post-mortem examination there was no tubercle, only great collapse of the lung.

Now having such cases as these in mind, not singly but many of them, on one side and on the other, could we say in the case of the little patient under discussion, that the disease which had reduced him to this point of emaciation was certainly phthisis? The positive evidence was considerable, and appeared to have already led a physician, for whose opinion I had much respect, to diagnose tubercle. On the other hand, what importance was to be attached to the fact that after eight months' existence of disease, a little cough of a weeks duration, a trivial dulness of the apices without evidence of any lymphatic enlargement, were the most definite physical signs in the chest that accompanied the serious derangement of the general health? In answer to this question it must be confessed that this course of the disease was not incompatible with the diagnosis of tubercle; yet it was so far different from the ordinary run of symptoms that one was the more ready to seek for other conceivable causes for the condition of emaciation, and experience then led one to inquire minutely about the way in which the feeding of this child had been managed. It turned out that before the weaning of this baby, its diet had been meat, beer, potatoes, and tea, given to it because (being eighteen months old) it did not seem to be thriving on breast-milk, and wanted strengthening. Since it it had been weaned, the same food, with bread-and-butter, but very little milk, had been continued, and the diarrhœa, which was a natural consequence of these arrangements, had been treated not by a change of diet, but by a variety of drugs. As the child wasted, port wine was added to its already advanced *menu*. How far did these considerations alter the diagnosis of tubercle? Certainly much, for although persistent dyspepsia is itself a condition prominent in infant's phthisis, yet the state of stomach and bowels in our child had unquestionably preceded by some time the other symptoms, and was probably brought about by the mischievous feeding. The diarrhœa, the loss of appetite, the flatulent abdomen, the emaciation—probably also some liver enlargement,—that made up the chief parts of the disease at its early stages, might directly be due to this state of stomach and bowels, and then the slightness of the lung-symptoms would seem to become readily explicable. But assuming for the moment that the digestive organs were primarily at fault, then again another question arose. For months the child had been getting little or no good from its food, and was reduced to a miserable state of nutrition; lately cough had come on, and there was some little dulness under the clavicles. Might it recently, and as a secondary condition, have been getting into a state of general tuberculosis, of which some evidence was beginning to appear in the lungs? And practically, therefore, must we not equally say that the child was consumptive, perhaps predicting for its disease even a more surely and rapidly fatal course? A provisional answer only was attempted to this question at the first consultation, and meanwhile the obvious course was taken of altering diet, dropping all tonics, and treating the disordered stomach and bowels, while the cough was met by linseed-meal poultices to the chest. On this plan the child had mended somewhat when I saw him again a fortnight later; he had got more cheerful and lively; rhonchus had disappeared, but some dulness remained; the bowels were acting only two or three times a day. I have not seen him since, and have reserved an absolute decision upon the nature of his disease. Yet I am even now disposed to think that the primary disease has been subacute gastro-intestinal catarrh, that the lung symptoms are transitory, and there is reason, therefore, for expecting a favorable termination to the case.

This child has furnished an excellent illustration of the difficulty of separating consumption from a small amount of ordinary lung-disease accompanying a condition of wasting from other than tubercular causes. He would be a very bold and I think a very unwise physician who professed to be always able to make this diagnosis with the certainty that anxious friends are apt to expect from him, at any rate on the first occasion of seeing an infant. And yet such considerations as have guided us here will generally, after some study of the case, enable a pretty true conclusion to be drawn.

The teaching of the case I have reviewed has reference to the recognition of phthisis among various *chronic* states, for our child had been ill for a third part of its small life with the symptoms that brought it to me for advice. Let me now illustrate the difficulty of diagnosing what appears to be an *acute* case of phthisis in a child.

A little boy, six years old, was seen by me a short while since in consultation with a medical friend at Woolwich. His father had died of phthisis, but the child had enjoyed good health until three weeks before he came under observation. On careful inquiry, however, no definite commencement could be assigned to the illness, and it was allowed that he had not been quite well for some time before his attack. Still, nothing of consequence was observed until he became languid and feverish, lost his appetite, and had some little wandering at night. When I saw him he was lying prostrate on a sofa, pale, but with a slight flush on his cheek, a hot skin, a rapid pulse, and accelerated breathing. On percussion, there was no dulness of any part of the lungs, but considerable mucous râle over the whole chest. The abdomen was neither retracted nor inflated; there was complete distaste for food, and some thirst; and the tongue was moist, with a little white fur. For some days five or six offensive stools, variously colored, had been passed daily, perhaps as the result of medicine. The urine appeared natural. The case looked so much like one of typhoid fever that careful search was made for the spots characteristic of that disease, but none were found. Still, knowing that in children these spots are often absent throughout unequivocal typhoid, and remembering that the child had been ill for three weeks, much importance could not be attached to the want of eruption. For a week the question between acute consumption and typhoid was left open—a question of what gravity in prognosis need not be said. At the end of the week, by keeping the child on milk and lime-water, light broths, and giving ipecacuanha and ammonia with catechu, some improvement had taken place; and now it was hoped that a positive opinion could be given as to the nature of the disease, and the chances of recovery from it. There was a little moisture of skin, somewhat less rhonchus in the chest, and the stools were three a day, and more nearly solid. Could it be affirmed that the fourth week of typhoid was being passed through, and that in a few days convalescence would begin? By no means. While the little improvement was pardonably allowed to cheer the mother in the nursing of her child, to my medical friend I was bound to state that the case was wearing a more serious aspect. The family history, the manner of onset of symptoms, the absence of diarrhœa for the first two weeks, the want of spots, and the amount and distribution of the lung rhonchus,—although each of these peculiarities in the case was perfectly compatible with typhoid, still, taken together, they had from the first disposed the diagnosis rather to the side of acute tubercle; and now, in the course of a fourth week, when in young children typhoid has almost always begun to pass away, there was nothing of improvement to show but a little local amendment in the state of the larger bronchi and of the intestines, but the main disease was plainly without abatement. However, in a few weeks the child got a little better, and the next time I saw it was a month later at Tunbridge Wells. Instead of the renewed strength that had been hoped for from this change, the child was found lying with pitiable patience in a still further stage of prostration, but with small change only in its local symptoms. The diarrhœa had got worse and less manageable; and, in the lungs, a suspected dulness of both apices, and a certain amount of consolidation of one base, were noted. On learning the immediate danger that the child was in, its mother took it back to Woolwich, and in the course of another week I made its post-mortem examination. Everywhere there were tuberculous granulations—in the lungs and bronchial glands, in the liver, spleen, and intestines. The deposit in the lungs was wholly of the miliary sort, with no large solid masses; there was much bronchitis and some lobular pneumonia. The small intestine was ulcerated, but the actually existing ulcerating process, the thick edges of the ulcer, and the presence of tubercles under the mucous membrane, left no doubt that the ulcers were tuberculous, and not those of typhoid.

The important practical conclusion, then, I take to be this: in the child, tubercular phthisis may be simulated by such various disorders, may itself take on such various forms, and (as we have said) so many of the aids to diagnosis that are present in the adult are wanting in the child, that we should, except in the plainest cases, refuse to commit ourselves to a diganosis until we have several times seen a child, and have had the opportunity of observing the fluctuations of symptoms, and then we may further get information from the effect upon the disease of altered conditions of food and management.

The two sorts of difficulty which are illustrated by the cases I have quoted relate primarily to the diagnosis between phthisis and diseases of quite another type, which have a deceptive similarity to it. But there is a large class of cases to which I have referred, and to which the doubts of our clinical assistant have mostly applied, in which we can establish that the essential disease is a lung affection, but where, nevertheless, we have the greatest possible difficulty in affirming or denying its tuberculous nature. It is to lobular pneumonia, and to inflammatory consolidation of the upper lobe of the lung, that this difficulty principally has reference; and it must be allowed that clinical and pathological considerations alike forbid us, in certain cases, to come to any positive conclusion on the question, even during the entire course of the disease. I shall briefly speak of what is known and believed to be known concerning the methods of coming to a decision between these lung diseases and tubercular phthisis, reserving fuller consideration of certain points until my lecture on pneumonia and on bronchitis, with their incidents.

Lobar pneumonia in children makes exception to its ordinary definite and rapid course when the upper lobe of the lung is attacked by the disease. The exudation is then much more slowly deposited and is also much more slowly removed; and the febrile symptoms are out of proportion, in severity and duration, to the degree of local mischief. Now, in the adult, in confessing the difficulty of separating apex-consolidation by such pneumonia from the consolidation of tubercle, we should say that the point was not of much practical moment, inasmuch as in the adult pneumonia of the upper lobe is in all probability itself of tuberculous nature. But this rule does not so certainly hold good in children; for in the young child pneumonia may have its seat in the upper lobe without any suggestion, either in family history or in previous health, of any scrofulous or tuberculous tendency. And the disease may absolutely, though certainly slowly, pass away, and leave no physical evidence of consolidation behind—a fact which, in the minds of most pathologists, appears to be conclusive as to its non-tuberculous character. But observe how physical examination may give absolutely no assistance in determining the nature of the solidification in the lung. Intense dulness over the upper lobe, increased vocal fremitus, strong bronchophony, and loud bronchial breath ing—signs which merely tell that we have a solid instead of an air-holding tissue in question,—tell nothing of the nature of the process by which the consolidation has been brought about. And it may be that the general signs convey no more decisive information. The severe cough, the great restlessness, the rapid emaciation, and protracted course of pneumonia of the upper lobe, are equally present in phthisical consolidation. Such complete consolidation of the upper lobe in phthisis will only come from the infiltrated form of the deposit, which then has strong clinical and pathological affinities with the exudation of pneumonia. But there are other cases where an opinion between the two diseases may be arrived at. What is called tubercular infiltration is less common by far than miliary tubercle, that gives less dulness, less bronchial respiration, and altogether slighter physical signs. Then, again, tubercular consolidation probably exhibits less definite commencement of symptoms, and has been preceded by loss of appetite, emaciation, and feverishness for some weeks or months. And of great importance, though not of conclusive significance, in diagnosing tubercle under such circumstances, is the presence or absence of the diathesis in other members of the family. I need hardly add, that the existence in other parts of the body of disease definitely ascribable to tubercle settles the diagnosis for all practical purposes. But the attention of the profession has recently been directed by Ziemssen of Greifswald to the means of distinction that are afforded by the thermometer. He finds that in lobar pneumonia, even of the apex, he gets a higher degree of febrile heat, and a smaller range of fluctuation between morning and evening temperature, than he observes in consolidation from tubercle; and his observations, very carefully conducted and recorded, point, therefore, to an element of diagnosis that should be used in the cases where other distinctions fail us, though it must be confessed that the method of examination by the thermometer in the rectum observed at regular times of each morning and evening—for except in this way no valid results were got—is not the best suited for every-day private practice.

Let us examine, in the next place, as to the diagnosis of tubercle from lobular pneumonia. In the course of an ordinary bronchitis or whooping-cough, or at the end of an attack of measles (scarlatina and varicella giving less often, yet with some frequency, the same phenomena), the cough that has been present gradually gets worse, and changes its character to an incessant hacking, with an anxious expression of face, flushed cheek, flapping nares, restlessness, and evident difficulty of breathing. The skin is hotter, the pulse more frequent, and if the case be one of pertussis, the whooping disappears. On examining the lungs, we find the physical evidence of bronchitis, with some little dulness below one or both scapulæ, and, in more advanced stages, generally under the clavicles also. And so from day to day the child lives on, and if it get over the first fortnight or so of this complication, its disease passes into a chronic state of cough and emaciation, with irregular fever. Who does not know these symptoms, and fear to see them come on in the course of acute disease in a child?

Now suppose that we have watched the development of this condition out of some primary catarrhal state, or out of an acute febrile disease, what view are we to take of its nature? I purposely suppose that we are thus favorably circumstanced for forming an opinion, rather than I put the case of a child brought to us for the first time, suffering under wasting and fever, with an obscure history of primary disease. Yet, even with complete knowledge of the child's story, all that we can justifiably assert as to the question of phthisis is this, that in most of such cases there is no tubercle and only chronic lobular pneumonia, and that in any given case, where the family history or concurrent symptoms do not alter the probabilities, the chances are in favor of tubercle not being present. For anything that can be made out by the stethoscope, the thermometer, or the most careful clinical inquiry, it is absolutely impossible to say whether the lung signs are due to acute tuberculisation or to lobular pneumonia. Even post mortem, there are, as I propose to show in my next lecture, certain deposits in the lung about the character of which pathologists are not finally agreed. As practitioners, we must therefore be content to know that in either case we have to deal with a disease of great fatality, and that for purposes of treatment the separation of the two states is not of much consequence.

If I refer now briefly to the diagnosis of tubercle *in the bronchial glands*, it is that I may refer to certain evidences of general tubercle which occasionally assist us when we want evidence concerning the nature of a morbid process in the lung. These glands become the seat of deposit in about five-sixths of the cases of lung tubercle, and enlargement of them can commonly be made out in the average case of phthisis of moderate duration. In about one-sixth of the whole number of cases of tubercle in the chest, the deposit is in the bronchial glands alone. The local evidence of enlargement of these glands consists (1) of dulness at the first bone of the sternum, which in health is equally resonant with either infraclavicular region. Alteration of resonance may be detected here before any can be found in the interscapular region. (2) A sign which is, according to many observers, antecedent to any evidence that can be obtained by percussion, but about the exact value of which I cannot certainly speak. It consist in a strongly marked snoring or blowing sound during expiration in the neighborhood of the bifurcation of the trachea, apparently produced by pressure of the enlarged glands on the air-tubes, and more commonly audible towards the right side of the chest, in correspondence with the fact that the glands about the right bronchus are usually those most enlarged. These local signs show, of course, only enlargement, not necessarily tubercular infiltration of the glands. When they are very large indeed, it is unlikely that there is any cause but tubercle to account for them; but when they are only moderately enlarged, the general conditions to which most importance appears to be due as indicating tubercle in them are—(1) tubercular enlargement of other glands, especially those of the neck; (2) a peculiar hairiness that is common in consumptive children, on the forehead, about the ears and cheeks, and particularly down the spine; (3) the general symptoms of causeless anæmia and emaciation, without remarkable loss of appetite, without diarrhœa, without cough,—I am speaking, of course, of cases where the question concerns tubercle in the glands only;—further increased temperature, especially towards evening, restless nights, accelerated pulse, while the skin becomes loose and flabby as the emaciation increases. Of course the history of tubercle in mother or father help us here, as in the case of deposit within the lung.

I now pass to what I have to communicate on the subject of management of children's phthisis. In the uncertainty that exists in diagnosing the disease, especially from lobular pneumonia, it is presumptuous to express positive opinion respecting the curability of phthisis in children; and in any case where we believe tubercle may possibly be present, our prognosis will be very cautiously given. Of course it may be that the family history, the commencement and course of the disease, make us pretty sure of true tubercle, and our fear of the patient's death is in such cases most serious. But of children with the clinical history and general appearance of consumption, who have some physical signs in the chest that may be tubercle, but about which we cannot speak positively, it may be stated, as a practical fact, that a large proportion do get well.

Let us suppose that we have a child of this kind before us, and have confessed that it is probably consumptive,—what means lie within our power for falsifying the grave forebodings that it has been our duty to raise? The first and most important matter, in my judgment, is to remove the unhealthy state of stomach that is habitually present, and that interferes so immensely with nutrition. Constantly a change of diet is required: the mother, thinking the child weakly, has been plying the deranged stomach with various "nourishing things" beyond its powers, and it is lucky if these have not been exchanged for a quantity of unwholesome delicacies, when the child was found to be disgusted at the plainer food with which its stomach had been overloaded. Even in the case of older children, and certainly in all under three or four years, who are consumptive, I find great advantage in taking away all solid animal food for a while, and keeping the patients on broths and bread and milk for the staple of their diet. Lime-water added to milk makes it more easy of digestion; and it is advised that whey should be substituted for milk in those cases—certainly three-quarters of them due to mismanagement—where it appears that milk does not agree with the child. When, by restriction of food and medicinal means, the stomach has improved and appetite returns, it may be satisfied by the careful and gradual addition, first of farinaceous puddings, and then of a little meat to the dietary.

I believe it is by improving the dyspeptic state that belongs to the disease that alkalies and vegetable salines act with such remarkably good effect in early phthisis; although it is also suggested that they cause oxidation either of the matter of tubercle or of the morbid elements that exist before the deposit. However it operates, I have seen that simple mixture of citrate of potash given steadily for some weeks, with no other medicine (or perhaps with a little ipecacuanha for cough), produces the most satisfactory results in cases which I could not doubt were genuine consumption of the lung. With this and the necessary care about diet, the skin has got cool and moist, the appetite has returned, the listlessness of the child has given place to cheerfulness, and restlessness to sleep; and this not as an exceptional instance, but in very numerous cases where the plan has been followed; not at a distance of time, but in the course of three or four weeks' treatment. Whereas I am daily noticing that, if cod-liver oil and tonics are given before the digestion has been attended to, the child's appetite still further fails, he gets feverish and worse, or else his stomach will declare against this plan by vomiting. An occasional dose of rhubarb and soda is not unfrequently needed, or, more rarely, of rhubarb and mercury.

Next as to the management of the local disease in the chest, where this is tolerably recent and acute. Soothing hot applications are generally of most benefit while there is much heat of skin, or evidence of acute bronchitis; and mustard added to the common linseed poultice, in just enough quantity to get a rubefacient effect, is of service in such cases. But soon counter-irritants of a stronger sort are indicated; and the one which beyond comparison, has proved most suitable in my hands has been croton-oil liniment. Blisters, however carefully applied, so constantly produce serious sores, and tartar-emetic ointment makes such troublesome pustules, that I have long given up the use of these agents. Croton oil, on the other hand, though I have used it to children under two years old, has never given me any undesirable results. Indeed, after the purulent eruption of it has appeared on the skin, it is difficult, in many cases, to keep up continued irritation by its further use; and if the skin be allowed to heal from the effects of croton oil, pustulation cannot generally be obtained again in the same spot —at any rate until after the lapse of some time. The same thing has been observed with a practice occasionally employed abroad of using nettles to produce counter-irritation. At any rate, if we use a croton-oil liniment of one drachm in an ounce of soap liniment, rub it in over a limited space twice a day till pustulation, and then once a day for a week, we shall risk no injury of the kind that other agents of the class are apt to produce; and we shall, with the greatest certainty of any such remedy, relieve irritation within the chest.

After the acuter symptoms that show themselves in a case of infantile phthisis are passed or have been relieved by the methods referred to, when the child has recovered some of its digestive power, then, and not before, tonics may be begun. First a little bark may be given, perhaps in addition to the alkalies already prescribed. Then comes the time when important good is derived from iron and cod oil; and along with these remedies may often be combined a change of climate, though I contend that we should allow no child to leave our charge in pursuit of health elsewhere as long as there is reasonable doubt about the nature of the disease, nor until we have succeeded in removing the acuter symptoms by such means as I have pointed out. The only exceptions to this rule seem to be when the life of the child at home is surrounded by actually unwholesome conditions, or when the impossibility of getting a child properly managed at home makes it worth while to risk something on the mere chance of its faring better elsewhere.

With a few words on the choice of a climate for phthisical children, I conclude what I have to day to say on the subject of tubercle at early ages. Recent researches have added much, and are probably destined to add still further to our knowledge in the matter of climate for phthisis. Amongst all the opinions that have been held of the respective advantages of "mild equable climate," "sheltered situation," "dry, bracing air," and the like, it seems probable that the central fact is, that the soil upon which people live may be seriously good or bad for phthisis. Large evidence is coming forward that populations living on flat retentive soils or on low-lying water logged plains die of phthisis far more than others who live on elevated, pervious and dry soils. It is questionable whether for any other influence comprehended under the term "climate," so strong a connexion with phthisis has been proved to exist as the connexion of the disease with qualities of soil. And if this be true as a matter of etiology, we need not hesitate to accept provisionally the belief that soil differences will influence the progress of actually-present consumption. But, indeed, we shall only be following the indications of long experience if we advise the choice of Hastings, Tunbridge Wells, or Margate, places elevated on a sandy or chalk soil, rather than of localities that lie low, whether on shore or inland. As regards special benefit to be obtained from sea air, I know well what strong opinions are expressed in its favor, and partly believe them; but the evidence has never been sufficiently sifted of the influence of sea apart from the other influences that make up climate in the places that are favorite resorts for phthisical people.

# An Address
### ON THE
# PRESENT STATE OF THERAPEUTICS.

*Delivered at the Opening Meeting of the Clinical Society of London.*

By Sir Thomas Watson, Bart., M.D.

I am very sensible of the great honor which you have done me in electing me the first President of the Clinical Society. Reluctant as I not unnaturally am to assume at my time of life any fresh duties or obligations, I yet must confess that I have extreme satisfaction and pleasure in accepting at your hands this new office; for the Society which we are founding to-night seems to me well calculated gradually to bring about that which, in my judgment, is the thing most needful at present amongst us. I mean more exactness of knowledge, and therefore more direct and intelligent purpose, and more successful aim, in what is really the end and object of all our labors—the application of remedies for the cure or relief of disease. Certainly the greatest gap in the science of medicine is to be found in its final and supreme stage—the stage of therapeutics. The anatomy of the human body is sufficiently well known. Its material pathology, also, under the auspices especially of a sister Society, has been, I will not say completely, yet very amply and fruitfully ransacked, by the diligent scrutiny and study of the dismal but instructive revelations of the deadhouse. I say its *material* pathology, for the condition of doctrinal pathology must necessarily partake of whatever imperfection may be found in the correlative science of physiology. Again, we have attained to a great degree of certainty in the detection and discrimination of disease in the living body. We know tolerably well *what* it is that we have to deal with, but we do not know so well, nor anything like so well, *how* to deal with it. This is more true, no doubt in the province of the physician than in that of the surgeon, but it is lamentably true in both provinces. We want to learn distinctly what is the action of drugs, and of other outward influences, upon the bodily organs and functions,—for everyone now-a-days, I suppose, acknowledges that it is only by controlling or directing the natural forces of the body that we can reasonably hope to govern or guide its diseased actions. To me it has been a life-long wonder how vaguely, how ignorantly, how rashly drugs are often prescribed. We try this, and, not succeeding, we try that, and baffled again, we try something else; and it is fortunate if we do no harm in these our tryings. Now, this random and hap-hazard practice, whenever and by whomsoever adopted, is both dangerous in itself, and discreditable to medicine as a science. Our profession is continually fluctuating on a sea of doubts about questions of the gravest imimportance. Of this the evidence is plentiful and constant. Let me substantiate what I am now saying by one or two glaring instances. The old and, as might have been hoped, obsolete controversy between the Cullenian and the Brunonian schools has been revived in all its former extravagance within our own time. Many of us can recollect the period when bloodletting was reckoned the *summum remedium* against at least all forms of inflammatory disorder—which were to be starved out also by the strict enforcement of what was called the antiphlogistic regimen. Now, there are, I believe, many who yet hold that to deprive a patient of an ounce of his blood is to sap his strength and to aggravate his danger, and that for all ailments brandy is the grand and easy panacea. One generation extols mercury as the sole and unfailing remedy for syphilis; the next attributes all the worst evils that follow in the train of that hateful disorder to the very mineral which had been administered for its cure. Even now, at this present time, a hot contention, of most weighty import, fills the air around us, upon the question whether, when cholera is present in the community, we should treat the diarrhœa, presumed to be the prelude or the commencement of cholera, by opium and astringents to check the discharges from the bowels, or by castor oil to promote them.

I say this uncertainty, this unseemly variation and instability of opinions, is a standing reproach to the calling we profess. It has shaken the faith of many men, of men both able and thoughtful, and driven them to ask themselves whether any kind of medication, other than the *vis medicatrix naturæ*, is of any real efficacy or value. Well, this is one of the questions which it will be competent for the Clinical Society to settle.

In order to clear the ground for correct observation, and in order to the avoidance of fallacies in observing, it is most desirable, when it can be done without harm or known hazard to the sick, to learn respecting all distinct and recognised forms of disease, what would be their course, what their tendencies, what their results, if left to themselves and subjected to no kind of remedial treatment whatever; to ascertain, in a word, what it has become the fashion to speak of as the *natural history* of disease. For this purpose, again, the Clinical Society may be expected to furnish help. Truly, there are diseases in which it seems to be our main business to stand by and look on; to see that Nature has fair play; that the patient has the requisite advantages of rest, and warmth, and pure air, appropriate food, and no more; to watch his recovery, not to attempt his cure. Probably all the specific fevers that run a definite course are of this kind. Medicine needs to step in only to redress some untoward deviation from that regular course, or to facilitate and fortify the natural recuperative efforts. But there is a legion of other disorders for which rest, and warmth, and pure atmosphere, and well adjusted diet, are *not* sufficient. There *are* cures as well as recoveries; and there *are* remedies that are equal to the cure. Still, of therapeutics as a trustworthy science, it is certain that we have as yet only the expectation. The influence of drugs upon the bodily conditions of health and disease is, indeed, most real and most precious to us. And some of them, in our contests with disease, we have learned to wield with much confidence and success. Who can doubt the efficacy of opium and of anæsthetic vapors in blunting the sensibilities of the body, and so quelling pain? No one questions the marvellous power of quinine to stop malarious fevers and other periodic complaints, or of the iodide of potassium to eliminate from the body, apparently by first dissolving them, certain poisonous or hurtful elements. The rough yet sanative effects of emetic and purgative drugs are notorious to all. But there is a host of other known or reputed remedial substances—to say nothing of a further host, no doubt, hitherto unthought of and unessayed—about which our practical knowledge is very loose, and imperfect, or even misleading. Concerning the peculiar virtue and specific agency of each and all of these, present and to come, we want sound and multiplied experience. There is no other way. The required knowledge must needs be gathered empirically, and by many hands. And while there are many drugs and medicaments yet unproven, there are also many shapes of disease of which the true nature and origin are still disputed or doubtful. Of all these matters will this Clinical Society—if I rightly apprehend its scope and purpose—take cognisance. Full and faithful descriptions brought before it, by competent and accurate observers, of the symptoms, circumstances, and progress of disease in the living body, and of its behavior under treatment by medicines prescribed with singleness and simplicity, and a definite aim and object, or sometimes, it may be, of its behavior under no treatment at all—authentic reports of trials with medicinal substances upon the healthy human body,—contributions of this order, multiplied in number, compared together, contrasted, sifted, and discussed by a variety of keen and instructed minds, of minds sceptical in the best and true sense of that word,—must lead at length, tardily perhaps, but surely, to a better ascertainment of the rules—peradventure, to the discovery even of the laws—by which our practice should be guided; and so bring up the therapeutic and crowning department of medicine to a nearer level with those other parts which are strictly ministerial and subservient to this. And I think I do not entertain an extravagant expectation of the results of the formation of this Society when I express my belief that, if wisely and strictly managed, it will hereafter be spoken of as the starting-point of a vast and solid improvement in that which is our special office in the world—the scientific and intelligent exercise of the divine art of healing.

# Original Papers.

## THE NATIONAL HISTORY AND TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By Richard Barwell, F.R.C.S.,

Surgeon to, and Lecturer on Anatomy at, Charing-Cross Hospital.

### No. IV.

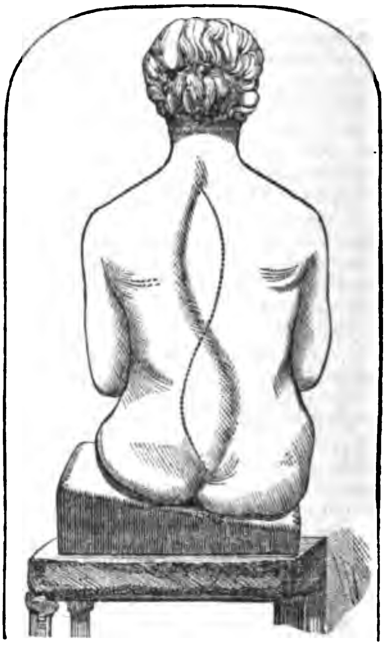
In stating, as at the end of the last paper, that a spinal curvature cannot be cured simply by making a patient sit for some time on a sloping seat, it was merely asserted that deformity must be treated with reference to its severity and cause. For this latter reason much pains has been taken to define the essential causality in each class of curvature, and it may be permitted me to recall briefly these facts that both classes of dorsal curvature are always followed by a lumbar curve (compensating or secondary), and that such distortion, when primarily lumbar, is always followed by a dorsal curvature in the contrary direction. Since, then, in either case we find curvature both in the back and in the loins, and since it nevertheless is essential to distinguish the one class from the other, we have to find some points of diagnosis which, properly used, will lead to an infallible judgment between the two.

To achieve this point we must remember that the former curve begins above with backward tendency of the ribs, causing torsion of the vertebræ, and it will be my task hereafter to point out the earliest diagnostic signs of this condition. The curve primarily lumbar commences below in certain conditions of changed posture of the thigh or of the pelvis, causing muscles already specified to act with unbalanced force upon the loins. While, then, the first symptom of the dorsal curve (of either class) may be stated broadly as an unequal projection backwards of the posterior parietes of the chest, so of the lumbar curve a change in the position of the pelvis is the first observable symptom. In all these cases it is of the highest importance to obtain the earliest diagnostic sign; and I would strongly impress upon my readers the fact that the mere lateral protrusion of the hip, whereby this deformity is usually first recognised by parents, dressmakers, or other unskilled observers, is in reality a late sign, but that a peculiar backward projection of the pelvis is, on the other hand, a very early symptom. Fig. 4 (the second figure in this paper) is taken from a patient with a lumbar curve to the right, viewed under a high light,[*] and it will be seen that the left hip protrudes very much laterally, and moreover, that the left side of the pelvis, that portion which lies just outside the sacral joint, projects much more backward than the same part on the right side. This appearance, which manipulation confirms, is increased by the sinking in of the lower ribs and of the soft parts about the loins, produced by vertebral torsion. This peculiar protuberence is more marked in some cases than in others, but it is always, in my experience, the first sign of a commencing lumbar curve. It may be detected long before lateral projection supervenes, while deviation of the spine from the straight line is still hardly to be recognised, although at that time careful examination will always show some torsion of the lumbar vertebræ; moreover it remains as an integral portion and a diagnostic sign throughout curves primarily lumbar, however severe.

It may be remarked as singular, that while the lateral curve in the lumbar region has been shown to produce torsion, yet the latter is manifest before the former. A little consideration will show, however, that such must be the case; for the vertebræ twist in such wise that their spines approach the concavity of the curve, and thus their tips may still remain quite or very nearly straight, while the rest of the column, especially its anterior face, is very crooked. Therefore, if the surgeon, rendered doubtful by the apparent rectitude of these processes, direct his attention to the soft parts lying on each side of the tips of the spines, he will find that on one side these parts will be soft, permitting the firmly-pressed finger to sink deeply, while on the other side (on the convexity if any curve has been detected) they will be hard and resistant; also on this side he will be able, with deep pressure, to detect the transverse processes themselves projecting unduly backwards.

Having then traced the origin of lumbar curves to certain changes in the relationship of the lower parts of the body (pelvis and thighs), the direct and natural prevention will evidently be to obviate these faulty conditions; and, no doubt, if we could always encounter the malady in its earliest stages such treatment would of itself prove efficacious, as in the case related in the previous paper. The fact is, however, that the distortion rarely comes under skilled observation in the earlier part of its course; and thus we have to overcome, besides mere habit and the influence of superincumbent weight, contracture of certain muscles, debility of others, and, in tolerably advanced cases, shortening of ligaments. Sufficient and commensurate treatment for an established curve will therefore naturally divide itself into the parts destined to fulfil these different offices—namely, respectively to the above conditions: position,[†] flexible support aiding but preventing muscular action, direct exercise of the weakened muscles, and certain methods of stretching shortened ligaments.

To the first category belongs the sloping seat described at the end of the last paper, whose action it will be desirable to describe more fully. The accompanying engraving represents a "torso," in which we will suppose that there existed a lumbar curvature to the left (the dotted line), the outline being actually from one of my patients who had all but recovered from that deformity. With the aid of this figure and of the studies which we have made of spinal movement, it will at once be seen that if we artificially lift the side of the pelvis on the convex side of the lumbar curve, the spine, forced by the law of balance, will tend to assume a curve in the contrary direction;[*] and since torsion of vertebræ depends upon sideway distribution of weight on the distorted column, and since we change this condition by artificial obliquity, the tendency to torsion should also theoretically cease. This hypothesis is verified by facts. When the patient is placed on this sloping seat, the lumbar spine does become straighter, and at the same time its transverse processes, which previously were too evident, become less markedly prominent. The words "*tend* to assume a contrary curve" are, however, used in the above sentence because I would guard against any appearance of exaggeration. Therefore I must not be supposed to say that an established lumbar curvature can be at once inverted by such means, or even that it will be at once effaced. An evident and manifest improvement while the patient is sitting, however, is immediately produced; and as the back becomes stronger, the patient can use this device for longer periods, so as to keep the back in a more normal posture,



**The light dotted line represents, in a somewhat exaggerated degree, the faulty curvature; the darker shaded line the curves into which the posture enforced by the seat throws the vertebral column.**

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[*] I shall, in future, and with reference to dorsal curvature, point out the advantage of examining patients in a light that comes from above.

[†] It must be remarked that all remedial position implies, to a considerable extent, exercise of those muscles which in the malposture are unused.

[*] The reader is requested to look back to paper No. III., published in the previous number as the diagrams representing the movements of the spine upon a board rocked from side to side.

and at last in a quite normal position, throughout a great part of the day.

I know of few things more difficult in practice than to fix upon the degree of slope which will be beneficial. By contrivances which I have at hand, I can regulate the inclination while the patient is seated, and am able now, after considerable experience, to arrive at the right inclination. Although in thus testing for the best angle the action of the lumbar muscles must be carefully watched, yet it is (especially early in the case) chiefly from posture of the dorsal region—from the behavior of the compensating curve—that we shall gain most information. I do not know whether this be from the fact that this curve, being secondary, is less indelible than the other, or simply because the greater length of the dorsal spine and the long sweep of the ribs supplies a more legible index. It will be very necessary to remember that while a small degree of slope will of course produce no good result, too violent a slant is injurious, as the following case will show:—

Emma T——, aged seventeen years and a half came to me on Feb. 16th, 1863. She is employed at a sewing machine, which she always drives with the right foot; is strongly built, but now pale, and evidently out of health, suffering from profuse leucorrhœa. On examining the back I found a considerable primary lumbar curve to the right, with a secondary dorsal curvature, both of which only partially disappeared on lying down. Seeing the depressed state of health, I only ordered tonics, with similar regimen, and certain recommendations about the mode of working.

March 2nd.—Better. Finds great difficulty in working with the left foot, and it is often impossible to do so. I ordered a sloping seat, being very careful to fix both the angle and the time of use small, on account of state of health; also ordered a bandage as hereafter described.

April 2nd.—Up to the middle of the month considerable improvement had taken place, and I had simply advised continuation of the same course. At the above date, however, she was looking very ill, and complained of severe pains in the back and loins. I found that her cousin, seeing the improvement produced by gentle means, had counselled her to have the slope made higher (nearly doubled) and to use it the chief part of the day. On examination, I found the back less well; the muscles on the right of the spine were swollen and tender to the touch; the loins so weak that she could with difficulty sit or stand upright. She was ordered to leave off the sloping seat; the bandage was tightened; and the cousin (who got a scolding) was shown how to rub the muscles upwards with a liniment of ammonia, chloroform, and opium.

As the patient had now quite recovered from the pain and weakness, the use of the sloping seat was cautiously resumed; and from this time the case went on uninterruptedly till I discharged her from care, quite straight on Dec. 16th, 1863.

This device, as it can only be used while sitting and only for certain periods variable in each case may be supplemented by an additional sole of cork to the boot, which of course must be on the convex side of the curve. The patient for the first day or two finds this awkward, but very soon becomes accustomed to it; nevertheless I only use it in severe cases, and only for those patients whose power is sufficient to bear the work which the new position throws upon the lumbar muscles. Even more caution is required in prescribing such ordinance than in the use of the sloping seat. Contrivances so simple may seem to the uninitiated inadequate; but no one who has not observed their power can estimate their value, and on first using them I was by no means prepared for such effects as they produce.

In describing the support which I use for this sort of curve it will be better to postpone consideration of the principles upon which I have founded all these mechanisms until discussing them more fully with the treatment of dorsal curves. The annexed figure taken from one of my patients shows a lumbar curve to the right with compensating dorsal curvature.

A round well-covered strap, about the size of the little finger, passing round the upper part of the thigh, supports on the hip a triangular pad strapped to the part; from the two upper angles a well-fitting piece of some strong material passes round the loins. This portion becomes broader, so that its greatest breadth is over the most prominent part of the curve; from that point as it passes round in front it tapers again. In the view as given, no fastening or other contrivance is visible, but in front the band is rendered elastic by the insertion of a strong india-rubber ring, and here, too, is added a means of fastening, as well as an arrangement whereby the surgeon can himself fix and vary the degree of tension without leaving it to the hap-hazard will of the patient. The object of keeping all the elastic force in front is this, that, while it perfectly allows all desirable movements of the body, the power supporting and upholding the lumbar curvature acts from right to left, and aids in obviating the morbid torsion of vertebræ in the contrary direction. However, when the curvature is extreme, or where, as happens in rare cases, torsion is not commensurate with the lateral curve, I insert elastic power behind also. If the secondary curve be well marked and does not disappear when the patient lies down, if the patient be muscularly weak, or if the part of the bandage just described have a tendency to slip, the other portion (marked in dotted lines) must be added. This simply consists of a band (supplied with the same elastic force and means of securing the proper tension) passing to a pad opposite the most prominent part of the dorsal curve, and supplied with a shoulder-strap to avoid slipping. The mode in which this latter part is arranged varies in different cases, according to the slope of the shoulders, position and size of mammæ, &c.

The advantage which such support possesses over steel instruments are, lightness, the absence of absolute restraint, and the direction of the force being transverse to the chord of curve.* The round form of the band at the top of the thigh prevents any cutting, and the fact that the force is exerted upon it at right angles to its direction causes the tension on that part to be very slight.

Exercise is in a great measure included in the position enforced by the sloping seat and the high shoe; but we may advantageously add to these certain calisthenics destined more especially to increase the power of the psoas and quadratus

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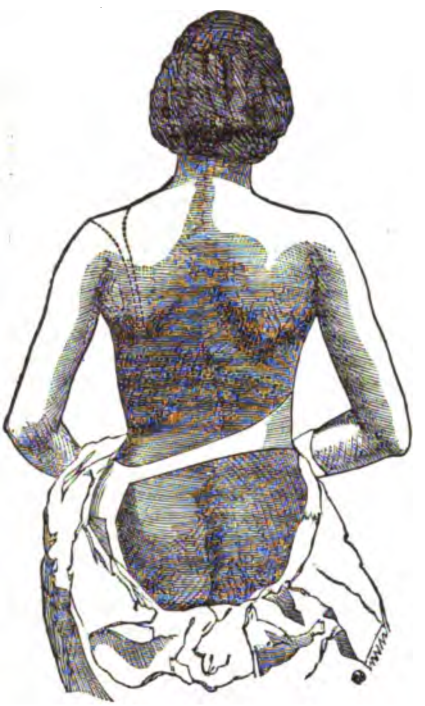
* The necessity of this direction will be hereafter explained.



The simplest form of support is marked in white, the additional portion (generally required) by dotted lines.

lumborum on the concave side of the spine. Space forbids my entering very fully into details; I will simply mention those which I have found most advantageous. Let the lumbar curve be to the right: the patient, with both knees perfectly straight, stands on a block or book from one to three inches high, as the case may demand, and with the right foot so close to the edge of the block that, by just separating the limbs, that extremity passes over the border. Still keeping the knees quite straight, the right foot is by action at the hips made to sink till its sole rests fairly on the ground for a minute, both knees being kept straight; then it is replaced on the book, and this manœuvre is repeated for a prescribed time, and at a certain rate. A chair is placed against the wall, the patient standing sideways to the wall, balances herself with the left hand upon it, and planting the left foot on the chair, slowly lifts herself until she stands upright. Standing with her back to the wall, the patient slowly lifts the left knee forward till the thigh is at right angles to the body, and gradually lets the limb fall again, repeating this movement slowly and rhythmically. After a time the foot is to be weighted according to the strength of the patient.

An exercise very valuable in long-standing and severe cases, for stretching ligaments on the concave side of the spine, is the following. The patient stands with the back to the wall, and, if possible, with the left side against the corner wall or some straight piece of furniture, as a piano or bookcase, so that she may be sure of not deviating from the perpendicular to that side. A block of carefully-proportioned thickness, is placed under the right foot. Fixing the right arm akimbo, she quickly and forcibly (according to her strength) bends the upper part of the body sideways to the right and repeats this several times. The back must be kept against the wall, the knees kept rigidly straight, and if the limbs be rather weak, or the patient awkward, a napkin or round towel passed round the hips, and secured to the wall on her left, must uphold the due position of the pelvis.

These are the more important among the exercises which I employ. They are to be used with great caution, and from time to time the surgeon must watch them, lest any awkward trick in their performance render them useless or injurious.

It is necessary to warn the reader against ordering any of these exercises, indeed any part of the treatment, lightly or incautiously. Simple as they may seem—indeed are,—they are also *direct* and as a force applied directly is the more potent in proportion to this quality, so if improperly employed, its power for evil will be great.

## ON OZONE.

By Henry Day, M.D. St. And., M.R.C.P. Lond.,

Physician to the Stafford County Infirmary.

Since the year 1840, when Schönbein commenced to place before the world his researches on "Electrified Air," "Ozone," or, as it has subsequently been called, "Alotropic Oxygen," no smaller subject than this has engaged the attention of scientific men.

The subject has attracted the attention of three classes of observers: the physicists, the chemists, and the physicians.

The physicists have been struck by the bearing of the question in relation to the general phenomena of the universe—by the changes, as it would seem, which mere matter may be made to undergo under the influence of force. For, and from this reason too, their minds have been brought to the consideration of analogous phenomena observed in the transmutations of phosphorus under the influence of heat; and some kind of countenance has been given to what may, perhaps, be called the ancient-modern notion—which the alchemists believed and a Faraday did *not* disbelieve,—that a day will come when elementary forms of matter will be reduced to a few simple types, if not to one type.

To the chemists the subject has been of interest, in that they have found a new body to occupy their attention, new compounds springing from it, new views respecting the molecular condition of elements, new speculation as to combinations, and the expression of combinations, by symbols and equivalents.

To the physicians ozone has afforded a wider—I had almost said a wider—field. They have believed they saw in it a cause of disease; a remedy for disease; a preventive of disease. It has been obtrusive; it has been perplexing. It has been subject of vast erudition; and yet it is, up to this day, a subject of intense doubt. Whilst some hold it almost in wonder, others are heretical enough to dispute its existence altogether, the majority hesitating and asking for more light.

* * * *

*History.*—The earliest electricians appear to have formed an idea that common air did not admit of electrisation. For instance, Benjamin Franklin, whose researches in electricity are second to none, says, in a letter addressed by him to Peter Collison, F.R.S., of London, in 1749: "Air is an electric, *per se;* and, when dry, will not conduct the electrical force. It will neither receive it nor give it to other bodies; otherwise, no body surrounded by air could be electrified positively and negatively. For," he argues, "should it be attempted positively, the air would immediately take away the surplus; or, negatively, the air would supply what was wanting."

In the main, there can be no doubt Franklin was correct. It is clear that air can never be so electrified as to become either a conductor of electric currents on an intense conductor of electrical force. If it could, what Franklin said would be true: the air would be the *prime* conductor and *prime* holder of all electrical force. But the generalisation of Franklin was rather too sweeping notwithstanding. * *

It will be remembered that he wrote the above before the time of Priestley, and that in speaking of air he included under that term what he believed to be an elementary body; and so far was he right that even now, with our knowledge of the compound nature of air, and the capacity of one of its elements—oxygen—to be influenced by electricity, and with electrical apparatus of the most powerful kind at our command, we can only affect one part in twelve of that oxygen which forms only one-fifth of the atmospheric scene.

The discovery of oxygen by Priestley led after a few years to the revision of the Franklinian hypothesis as to the absolute incapability of the air to be influenced by electricity.

In 1789, Van Marum, an electrician of Holland, practising on the vital air of Priestley, or, as it has since been named, oxygen, discovered that, after electric sparks had been passed through this gas, a particular odor was developed, which he spoke of as "an electrical odor," and which represents what is now called, on the same nomenclature, but from a Greek derivation, "ozone."

Towards the beginning of the present century, Cavallo, seems to have made a further step, for he observed that a peculiar condition of air was produced when passing through it electric sparks, which condition he designated the "aura electrica." Cavallo further observed that this electrified air had a purifying effect on decomposing organic matter, and he therefore had it applied, as he thought with good effect, to fetid ulcers of the human subject.

One of the discoveries about this time, having an indirect bearing on the subject before us, deserves attention, the more so because it independently confirms some more recent observations made by two of the latest experimentalists. The discovery I refer to was made by Aldini, the nephew of Galvani, and Professor of Experimental Philosophy in the University of Bologna, and who became celebrated in this country by his remarkable experiments with galvanism on the bodies of executed criminals. Aldini observed that when, by means of a metallic point, he electrified the interior of a glass jar, which he inverted and placed over a plate of metal, so as to form what he called "an *insulated plemum,*" the water in the glass rose several lines in a very short time. Afterwards he repeated the experiment, using mercury instead of water, when he noticed the same occurrence, but in a less marked degree.

In these experiments, evidently without knowing the meaning of the facts he had observed, Aldini saw the condensation of oxygen under the influence of electricity.

Nearly forty years now elapsed before any further notable advance was made; then Schönbein, the late well-known physical philosopher, commenced his famous researches; and, taking the view that the electrical modifications of air rested solely on modifications of the oxygen, proceeded at last to theorise that oxygen itself presents three distinct conditions: the first, a negative polar condition, which he termed "ozone;" the second, an opposite condition, which he named "antozone;" and the third, a neutral state, resulting from the union of the two.

It was fortunate for Schönbein that his researches very early obtained the notice of Professor Michael Faraday, who, although he attempted but little in original research in this one direction, made the scientific public, by his brilliant lectures, most familiar with what had been done, and excited many observers to prolonged and careful study.

The presence of a peculiar body, possessing special properties, once established by Schönbein, its nature became actively canvassed; and our countryman, Williamson, started the theory that ozone was a teroxide of hydrogen. This theory, based on the supposition that water was always produced when ozone was removed, assumed the absolute necessity for the presence of hydrogen for the production of ozone. It remained for Andrews and Tait to dispose of this view by proving that when hydrogen was entirely excluded, and absolute oxygen made to receive the electric spark, the change of oxygen into ozone, to the extreme extent of one part in twelve, could be demonstratively established. The same observers further showed, by after experiment, that in this process of change there is condensation of the oxygen, and reduction of volume. Finally, they proved that when mercury was exposed to ozonised oxygen, the ozone disappeared, the volume of gas remaining precisely the same.

The last theory as to the nature of ozone, and which brings us up to our present knowledge of this curious gas, has been advanced by Dr. Odling, and confirmed experimentally by M. Soret.

The facts bearing on this theory have been very ably epitomised in a leading article in the *Medical Times and Gazette* of October 5th, of the past year (1867), which facts prove, as far as can be proved, that ozone is a condensed form of oxygen. * *

I would further remark, that the hypothesis of Schönbein respecting the three distinct states of oxygen has fallen into disfavor, and that the manifestations of ozone, as a distinct body, can only be demonstrated within certain limited degrees of temperature. At what reduced degrees of temperature ozone may become manifested, is a question as yet unsolved; but that it disappears at an elevated temperature admits of direct proof. In common language, then, ozone is destroyed by heat; but, it is possibly more correct to say that it loses its character, or certain of its special characters. Why this should be so, is altogether unexplained, except on the supposition of a transmutation of force.

*Mode of Production.*—Several means exist for the production of ozone besides those natural means, whatever they may be, which bring it into the air without our calling for it. Amongst the several artificial modes, the first to be mentioned should be the original one of passing the sparks of an ordinary frictional electric machine through the air or through oxygen. An improvement on this method has been accomplished by the use of Ruhmkorff's induction coil. When sparks are passed between the electrodes of this machine the air is ozonised; but, in order to collect the air thus ozonised, it is necessary to call in the aid of an "ozone generator." Siemen was the first to use this generator. An improvement on Siemen's apparatus has been constructed by Mr. Apps, the philosophical instrument maker in the Strand.

Another method consists in passing air over phosphorus partly immersed in water: a simple ozone-maker of this kind was invented by the late Dr. Barker of Bedford, and another, I believe, by our colleague, Dr. Moffat of Hawarden, whose researches on the relations of ozone to disease are so widely known.

There is also another mode of obtaining ozone, not very applicable, but forming a pretty experiment; it consists in diffusing the vapor of ether through a bell-shaped jar, and then inserting in the vapor a heated glass rod.

The last suggested method is one by M. Morin: it consists in dispersing a current of water in the pulverised form—in other words, in the form of spray.

These are some of the principal artificial means for obtaining ozone. Of the manner in which it is produced in nature, various theories have been promulgated. Dove, so well known for his theories on the laws of storms, thinks that ozone is generated in the higher currents in the atmosphere; in fact, during the condensation, in their polar course, of the heated equatorial currents. Moffat believes he has traced the ozonic atmospheric periods to particular winds, and also to certain phosphorescent states. Lowe holds that the apparent varying intensity of ozone may possibly be attributed to circumstances operating for, or against, its detection; thus, an increase of temperature from increased chemical action would show an increase—a greater velocity of air, an increase—of moisture up to saturation, after which a minimum will result. At his (i. e., Lowe's) observatory at Highfield House, near Nottingham, most ozone occurs during the prevalence of a south wind, and least with a north-east wind; the maximum being attained when the barometer is at its lowest readings, and the minimum when at its highest: this, he thinks, may be simply owing to the increased velocity of a south wind over a north-east wind, its increased temperature, and its moisture. Others have argued that ozone is the result of electrical discharges in the air; and several have assigned to vegetation the generation of this gas. Amongst these last I may name Dr. Daubeny of Oxford. Dr. Daubeny, judging from the depth of coloration produced upon Schönbein's papers by exposure to the open air, as observed during eight months, inferred that the quantity of ozone at Torquay was much greater, on the average, during the prevalence of winds from the sea. He also endeavored to ascertain whether this ozone was generated by vegetation; and, although he found that light alone colored the paper, he was disposed to think that, after deducting this, a certain residual effect was due to the green parts of plants in generating ozone during the day.

Presuming that the opinion of M. Morin is correct, and that ozone can be produced by the spray of water, the prevalence of ozone during sea-breezes might possibly be traced to the action of sea-spray. In order to ascertain whether there was any plausibility in the last named theory, I tested the effect produced by the spray of fresh water and sea water, using Richardson's spray tube for the purpose of diffusion, and directing the spray against plates of ozone test-paper...... As far as these experiments went, and taking them for just so much as they are worth, the result given was altogether a negative one; but it is by no means certain that experiments of a somewhat similar kind, on a larger scale, and better devised, would not afford evidence confirmatory of M. Morin's views.

As regards the general question of the natural production of ozone, many difficulties stand in the way of its solution; so many bodies present in the air produce such similar effects. Light, as Dr. Daubeny observed, is a source of interference, and the circumstances under which the ozone seems to appear are so disconnected and variable, that I regret to be unable to report any solid progress in this direction.

When we are dealing with artificially prepared ozone, we are treating a tangible body, and we can remove nearly all obstacles to investigation; but in dealing with air the position is entirely different, and uncertainty instead of certainty meets us in every foot of our research.

*Tests.*—There is, up to the present time, only one recognised test for ozone—namely, the solution of the iodide of potassium and starch. Owing to its power as an oxidiser, ozone acts readily on the potassium of the test compound; the potassium is thus separated from the iodine; the iodine, set free, combines with the starch, forming the iodide of starch, giving a blue color, which is the test. Test-papers, consequently, have been used, the papers being saturated with a solution of iodide of potassium and starch. Three forms of test-papers, thus prepared, are now in use —namely, Schönbein's, Moffat's, and Lowe's. * * * Lowe has also brought out another, in which, on the recomendation of the late Dr. Dundas Thomson, fifteen grains of chalk are added to each ounce of dried starch to prevent sourness; this precaution affords great uniformity of effect. In a further research, Lowe has used what he calls a "dry powder test," using powders of dried wheat-starch combined with iodide of potassium. * * * I have had sent to me within the last few days some test-papers prepared by Dr. John Day, of Geelong, Australia, who has made ozone a special object of study, and who advocates, with great ability, the views of M. Schönbein. These test-papers are remarkably sensitive, but I regret to say that I have not at present been made acquainted with the relative proportions of the ingredients used in their preparation. * * *

In order to detect the presence of ozone in the open air, the ozone test-papers, or test-powders, are ordinarily placed in a box or ozone cage; the box is colored dark within to avoid light, but air is freely admitted. This is the apparatus employed, I believe, by all the meteorologists who supply reports to Mr. Glaisher. The amount of ozone present is measured by the intensity of the color, and is registered on Moffat's scale. There are objections to the ozone box, which objections have been well pointed out by Mr. John Smyth, who thinks that the velocity of air makes a distinct difference in the registration of ozone. He (Mr. Smyth) has devised an apparatus for securing greater uniformity of results. * * * Mr. Smyth shows, from a table of experiments made with this improved ozonometer, that there is not much difference in the quantity of sensible ozone in two masses of air of equal volume, although they may be moving at different velocities, in different directions, and under different hygrometrical conditions. He is furthermore of opinion that the ordinary test-papers do not register high enough. * * *

The great objection to these test-papers is that discolorations are produced by other agents than ozone, particularly by iodine, the chlorides, hydrochloric acid, nitrous and nitric acid. In the atmosphere, the last-named acid, from its comparatively frequent occurrence, especially after electric storms, is a serious objection. The late R. D. Thompson affirmed that even carbonic acid would affect these papers when they were very sensitive. As this latter point is of importance, I tested some highly sensitive paper with carbonic acid in its nascent form and after it had been collected, and found that it occasioned a slight but evident change of color.

It has occurred to my own mind that possibly a delicate test for ozone might be found by observing the effect produced by the electric spark when passed through rarefied ozonised air. For this purpose, a glass globe should first be filled with air that is saturated with ozone, and then be partially exhausted; through this rarefied ozonised air an electric spark should be passed, and the color of the spark should be noticed, and compared with the color of the spark when passed through common air contained in the same vessel. But this experiment should be carried further by bringing the spectroscope into use. As by some, indeed by many, all gases are supposed to be the vapors of metals, it is feasible that the spectrum would give a different band or bands with rarefied ozonised air from that or those afforded by common air under similar circumstances and conditions.

*Physical properties of ozone.*—Whatever views may be entertained as the chemical nature of ozone, it must be admitted to have certain physical properties which mark it distinctively. We have already seen, from the experiments of Soret, that it is heavier than oxygen. It is, also, quite insoluble in water; its power is intensely increased, so that air saturated with it destroys dead organic matter with great rapidity, thick india-rubber tubing is quickly eaten through by it, and ammoniacal products are speedily decomposed. In contact with ammonia, as Dr. Wood first pointed out, it forms white fumes, like white fumes of chloride of ammonium, as chlorine does, producing a specific compound or salt, an "ozonide of ammonium." We have proved, further, that it possesses a peculiar odor. Thus, in relation to weight, diffusion, chemical action, and smell, it is, at all events, a distinct body; nor can, I think, its individuality be doubted by any, until these physical characteristics are explained away.

*Physiological action.*—The physiological action of ozone has been studied by many observers, and with singular uniformity of results. It has been tested, in regard to its effects, upon living animals, on dead tissues, on blood, on various secretions, and on various excretions, compound and simple.

Let us first take under review the action of ozone on living animals. If a warm-blooded animal be placed in a glass chamber, and be subjected to a stream of ozonised air, the oxygen of that air having been ozonised to the twelfth part, and the influence of carbonic acid being entirely excluded, special physiological phenomena are quickly displayed. The first sign or symptom is an irritability of the mucous surface of the nostrils, and of the conjunctivæ; there is often free secretion of saliva, and even profuse sweating in those animals that exhibit sweating; there is also thirst, and dryness of the tongue and nostrils. These symptoms are succeeded by great rapidity of respiration, and soon by violent action of the heart. When the chest is auscultated in this stage, there is always dry bronchial breathing, and a whistling sound, as in the first or preliminary stage of acute bronchitis in the human subject.

The effect of the ozone being sustained, cough manifests itself, followed by secretion of frothy fluid from the bronchial surface; this is equivalent to the congestive stage of bronchitis. Finally, there is lividity of the skin of the nose, of the nostrils, and of the lips, great coldness of the surface, gasping respiration, jactitation, and death, the death being often sudden. This may be said to resemble most perfectly the exudative stage of bronchitis. This order of symptoms, or phenomena, as they perhaps had better be called, has been recognised by all experimentalists; it has been pointed out with particular care by Dr. Richardson, and my own experiments have been attended with a corresponding result. There is, however, a remarkable difference in the periods of the phenomena noticed in different animals, their order, nevertheless, being maintained in each case in which they are manifested. Guinea-pigs are peculiarly susceptible of the influence of ozone; these animals die in an atmosphere saturated with ozone, usually in about an hour or an hour and a quarter, presenting with great exactitude the order of symptoms I have described above. Rabbits live longer than guinea-pigs, exhaling water from the lungs much more freely, and also micturating with greater freedom. Rats die very rapidly. Mice exhibit a greater tolerance. Pigeons resist the effects of ozone much longer than guinea-pigs, and may readily be taken out of the chamber in which they have been confined with guinea-pigs, apparently but little inconvenienced, at the period when the guinea-pigs are dead. If, when just removed, the chest is auscultated, the breathing, however, is found to be particularly sharp, dry, and cooing, the action of the heart being amazingly rapid, reaching even 240 beats in the minute, and the respiration being from 90 to 100 in the same time. Pigeons removed altogether from the ozone, when in this condition, will frequently exhibit the third stage of obstruction to respiration, and die. Frogs seem to have the power of resisting the influence of ozone permanently, *if* they are allowed free access to water. * * *

*Morbid phenomena.*—The morbid appearances presented after death from ozone in warm-blooded animals are principally confined to the respiratory passages. If an animal be killed during the *first* stage, the bronchial membrane will be found to be dry, and deeply congested at spots, the lung structure being ecchymosed, and both sides of the heart full of blood. In the *second* stage the whole lung is congested, the bronchial surface being red, the right side of the heart engorged, and the left side of the heart empty. In the *third* stage the lungs also are intensely engorged, the bronchial surface is paler and filled with frothy fluid, the right side of the heart is full, and the left side empty. In cases where animals are removed from the chamber at the beginning of the second stage, and, after some exposure to the air, subsequently die, the morbid anatomy is rather that of pneumonia than bronchitis: in one experiment that I performed the stage of hepatisation was so distinctly marked that I could not have recognised it, by the lung itself, from hepatisation of the lung in the human subject after pneumonia. * * *

If animals die in the earlier stages of the disease produced, and especially if they die suddenly in such stages, the blood is found firmly coagulated in the heart, however quickly the body may be opened after death; but fibrinous separations never seem to have been discovered, the time for such separation having evidently been too short. Cadaveric rigidity is also, in these cases, quickly developed; but when the symptoms run on to the stage of lividity, the blood will remain fluid for several minutes after death, and the absence of rigidity of the muscles is proportionally prolonged.

*Relation of the above facts to certain diseases in man.*—Among the several, indeed numerous, surmises as to the relationship of ozone to many diseases in the human subject, we have only one series of basic facts on which to ground any safe inference. Those facts are, that the inhalation of ozone by inferior animals produces symptoms analogous, if not identical, to the symptoms of catarrh, bronchitis, and even pneumonia, in the human subject. Hence it might be inferred that the same agent, present in the atmosphere in excess, would light up those diseases. The great question then arises, whether there is ever such an excess of ozone in the air as would be likely to create such a result. If such were the case, it would follow that man is more susceptible to the effects of ozone than inferior animals; for, in the laboratory and during experiments, although irrition of the air-passages and pain in the head may be occasioned and many symptoms like nasal catarrh occur, yet, for such an effect to be produced, there must be, with man as with the animal, an excess of ozone quite appreciable to the ordinary senses.

When to the above facts we add the great difficulty of determining the actual existence of ozone in ordinary atmospheric air, we must hesitate to accept any dogmatic conclusion in regard to ozone being a natural cause of disease. There is, moreover, this important fact to bear in mind—that, taking animals of the same species, and subjecting them to the same ozonic conditions, they suffer the same symptoms, although not in each case in the same degree perhaps. This rule should logically follow, although not necessarily to the same extent, in regard to the human family, if it, in sections or masses, were subjected to the influence of the same universal agent, which is not the fact. To put forward an analogy: if in the air, under the influence of storm or aught else, some subtle body such as chloroform could become equally diffused in quantity sufficient to influence one individual by narcotism, it will not be disputed that all other individuals breathing the same air would exhibit more or less the symptoms of narcotism. What, then, is the difference, if there be any difference? The difference must lie in what may be called individual power of tolerance of an active physical agent—a tolerance not even marked in the same individual at all times.

Another view also presents itself to the mind; it is this: if ozone really causes disease, it is quite certain that the tests we have are altogether inefficient to record its presence when it *is* producing disease, or there is some other agency at work which interferes with the physical facts, without interfering with the determinate physical action.

Finally, it has to be considered whether, in regard to epidemics especially attributed to ozone —I mean catarrhs, bronchitis, and the ike—there are not other perfectly efficient causes at work to excite and create these maladies independently of ozone.

The recent report of the Registrar-General shows so definitely the influence exercised by simple variations of temperature in this respect, that really in ignoring these variations to look for more obscure causes seems like going from the real and ascertained to the problematical, without any other reason than love of novelty.

I put forward these objections, not with the mere view of rebutting theory, but with a desire to enforce a more direct proof of theories, plausible on their surface, but unquestionably open to serious objection.

I think it *possible* that, in studying ozone, admitting all the difficulties, and determined to trace out the rigid truth, we may in time discover a connexion between the presence of ozone in the air and catarrhal and bronchial epidemics; but further than this I cannot concede the point, nor admit the smallest opening towards an argument tracing any other class of disease to atmospheric ozone as the cause.

*Action on organic compounds.*—The effects produced by ozone on a variety of organic compounds have been found by a large body of experimentalists to be tolerably uniform, although the explanations given as to the cause or causes occasioning such effects have not been in all instances alike.

*Blood* absorbs ozone with great rapidity, and oxygen is at once freely liberated. This capability of liberating oxygen has been said to reside principally in the red globules, from the circumstance that, when freed from fibrin and albumen, these bodies produce with ozone this identical effect. Further: when ozone is passed through freshly drawn blood, the red corpuscles lose their color, and in the process are destroyed. M. Schönbein adduces as an additional proof the circumstance that such decolorised blood is no longer capable of producing the characteristic blue color with the tincture of guaiacum.

Ozone passed through putrid blood destroys the putrescent odor and restores coagulation.

The long-continued action of ozone on *albumen* gives rise to the appearance of "flocculi" resembling fibrine, and Mr. Smee, junior, believes these "flocculi" to be fibrine; but as they are not soluble in nitric acid this opinion must not be hastily accepted. M. Gorup-Besanez considers that the change undergone by albumen when treated with ozone is in many respects similar to that caused by pepsine.

Upon urea, ozone produces no oxidising effect.

Upon uric acid, ozone acts rapidly, causing it to become soluble in water, which water, upon slow evaporation, yields yellow prismatic crystals; and by further evaporating the water from which these crystals are obtained, urea is obtainable.

*Allantoin*, *alloxan*, and *creatine* are not affected by ozone; and *leucin* is acted upon but little, if at all.

Ozone produces creatine from creatinin, and converts the solution from an alkaline into an acid one.

Ozone converts *casein*, at one stage of the experiment, into a substance very like albumen; but a more continued action of the ozone causes the formation of flocculi in every way resembling those produced by the action of ozone on albumen.

*Milk*, through which a stream of ozone has been passed for some time, will, if kept for a few days, lose all its casein, whilst the fatty particles of the milk will remain in an unaltered state for a very lengthened period.

If ozone be passed through *bile* containing all its natural constituents, it is very soon decolorised; but if the bile be freed from coloring matter, mucus, and fat, no effect is produced on it.

*Conclusion.*—1st. The history of ozone, through all the steps that have led to its discovery, is singularly interesting and beautiful. The discovery throughout has been conducted purely on the constructive or synthetic method; and, in all its early stages, has been the result of simple observation apart from theory. Progress in regard to it has thus been made by long but even steps, each independent observation being confirmatory of what has passed before, and tending ultimately to the same end.

2nd. There can be no escaping at this moment from the theory that ozone is a modified condition of oxygen—indeed, is oxygen plus force, which force is probably used in condensation; in other words, the power or capability of oxygen to combine with itself.

3rd. The artificial production of ozone, and the quantity that can be so produced, or, perhaps it is preferable to say, the quantity of oxygen that can be transformed into ozone, is most clearly and distinctly defined—in fact, in the laboratory, the production of ozone is an absolute verity, as pure as the production of oxygen or chlorine. How ozone is engendered in the air—if it be there—is not yet in any way definitely understood.

4th. The ordinary tests for ozone are imperfect, not so much because they will not always prove the presence of ozone, but because they prove too much—that is to say, the presence of other bodies also common to the atmosphere.

5th. In its action on the body the effects of ozone seem to be confined to the respiratory passages and structures; indeed, it is purely local in its action, closely resembling diluted chlorine and diluted bromine in vapor. The symptoms induced, varying in intensity, may be catarrhal, bronchial, pneumonic; nor is there any evidence of any other class of diseases from ozone.

6th. Ozone administered so as to produce death promotes conditions clearly indicative, as I have already stated, of local action confined to the pulmonary system; the conditions are those of suppressed secretion, vascular congestion, and exudation.

7th. The relation of ozone to disease—if there be such a relationship—is confined to disease local in its character, and to one part of the system, the respiratory. Beyond this there is no logical argument whatever; and even this must be accepted as problematical until other potent influences are estimated as causes, on the principle of exclusion.

8th. On dead organic matter ozone exerts a powerfully destructive action, resembling, in this way, chlorine, iodine, and especially bromine.

9th. Ozone is a disinfectant and deodoriser, belonging to those bodies which disinfect and deodorise by resolving and decomposing into primitive and innocuous forms; competing, in this respect, with the substances already named—chlorine, bromine, and iodine. It possesses these qualities in a less degree than chlorine and bromine, and is in many cases not so applicable as iodine. * *

10th. As a preventive of disease, ozone can only act by destroying organic animal poisons, in which respect it may again be compared with the substances I have more than once named.

Lastly, as a remedy. In the form of ozonised oil, of ozonised ether, and ozonised water, it once more ranks with a similar combination of remedies containing chlorine, bromine, and especially iodine. Whether, in any respect, it may prove to have greater advantages than the last-named trusty and ready agent, can only be conclusively arrived at by determining whether it will do what iodine will *not* do; and this can only be decisively made out by applying to it the touchstone of inductive philosopy—a rigid exclusion of all that is ineffective.

*Note.*—Under the head "Tests," the following correction should be made:—Instead of "There are objections to the ozone box, which objections have been well pointed out by Mr. John Smyth, who thinks that," &c.,—it should read thus: There are objections to the ozone box, which objections have been well pointed out by Mr. John Smyth. This observer takes a view dissimilar to that of Lowe, who thinks that the velocity of air, &c.

**Stafford, Jan. 1868.**

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# SOME CONTRIBUTIONS TO THE PATHOLOGY OF FIBROUS TUMOURS.

### By J. H. James, F.R.C.S., &c.,

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The subject of tumours has for many years past, so much engaged the attention of the profession, and so many valuable memoirs have been published on the subject—and I may especially mention the last comprehensive and carefully arranged contribution from the pen of Mr. Paget, in Holmes's "System of Surgery,"—that it might almost appear to be a work of supererogation to offer any contribution on the subject, were it not that, in all matters of medical science, there will be parts to be filled in; and there is one class of tumours—I mean fibrous—on which there is some measure of doubt even among the highest authorities. A great number of these have, first and last come under my care, and I will venture to submit a few, with some observations connected with them to the consideration of the profession.

There can be little doubt that, although fibrous tumours are generally of a nature non-malignant, yet cases do occasionally present themselves where they are not only malignant, but intensely so; becoming, in their progress, allied to the most intense forms of cancer, although at their commencement, and it may be through their whole course until they have disintegrated, their pathological characters possessed strong distinctions from cancer. But it is not on this account, simply, that I present the following cases, but rather to show the difficulties and dangers which attend their removal when large, while the necessity for doing so is often but too clear.

Case 1.—On Dec. 20th, 1862, I was desired to see a lady in the northern division of the county, aged forty. She had a tumour in the right thigh the middle of which it occupied, and extended upwards nearly to Poupart's ligament, apparently throwing out a prolongation in that direction. It was slightly movable and somewhat irregular on the surface. She was under the care of an excellent surgeon, and after careful examination, we agreed that it should be removed; the character being that of a fibrous tumour. This was effected with much dexterity by the surgeon, assisted by my son and myself. From its close proximity to the artery, this required much care. Its base was imbedded in muscular structure. The capsule was not so strongly marked as in many other cases but the surrounding adipose substance was dense. At its base it was connected with muscular structure, which was partly removed with it, also with the inter-muscular fascia. The prolongation towards Poupart's ligament proved to be a gland, partaking very much of the same appearance as the tumour, and connected with it by dense cellular substance. In the course of the operation, the artery was necessarily bared. The section of the tumour was mostly white and fibrous, with a portion of the centre less solid and of a chocolate color. The surface was granulated.

March 19th, 1863.—I received a bad account: a quantity of little tubercles in the cicatrix.

June 10th.—Being in the neighborhood, I saw her. Her state was most singular. The abdomen was covered with small tumours, movable under the skin; and there were several elsewhere one being on the upper part of the spine, which had produced absorption of the bone, and caused paralysis of the left arm. Part of the wound never healed, and had the character of a decided cancerous ulcer.

She died at the end of June.

The preparation is in the museum. There can be no question as to the extreme malignancy of this disease, which, however, never appeared until subsequent to the operation.

Case 2.—J. S——, aged twenty-six, not of an unhealthy appearance, was admitted May 8th, 1851. There was a tumour extending from the upper part of the ear to considerably below the angle of the jaw, about the size of an orange. It was firm, a little uneven, and movable in a slight degree. It had not increased very rapidly until recently, for the duration was eleven years. It was clear that, if it could not be removed, it must destroy life by pressure on important parts, or by breaking up and ulcerating. After an anxious consultation with my colleagues, it was determined to attempt its removal, however difficult. This was done on the 14th May. The operation consisted in making crucial incisions (the first coinciding with the direction of the artery) and dissecting back flaps, and separating the tumour above and posteriorly, where the ground was safe; but when I came to the anterior and lower portion below the angle of the jaw, where it actually sank to the vetebral column as found in the course of the operation, the difficulty was extreme, as may be easily understood by the situation. It was not only imbedded amongst arteries and nerves of the greatest importance, but was also connected with the muscular fibres of the digastricus stylo-hyoideus, and sterno-cleido-mastoideus. By using my knife as little as possible and my nails whenever they would serve, I had in a great measure succeeded in separating its anterior and deep part, when I sprang an artery, which bled violently. All attempts to seize its mouth, even when the carotid was compressed were vain. With the kind assistance of my colleagues, Mr. De la Garde and Mr. Edye, I tied the common carotid; this happily stopped the hæmorrhage. I then cut away all the tumour which had been cleared, which gave me greater facility, and also disclosed its character, which was then supposed to be malignant. Feeling that it would be highly dangerous to follow it down to the transverse processes with the knife, which might risk wounding the carotid again, or other important arteries or nerves, I passed a double ligature close to the transverse process to which it adhered.—9 P.M.: No hæmorrhage. Sleepy. Complains of much dragging and soreness of the throat; no other bad symptoms.

May 15th.—The drowsiness has passed off, and no ill consequence is imputable to the ligature of the carotid. He has extreme difficulty in swallowing from soreness and phlegm in the throat. Considerable tumefaction; little fever.

16th.—Difficulty of swallowing relieved. In all respects going on well.

June 5th.—Nothing could have done better than this case up to the present time. The wound had healed with the exception of a small portion under the angle of the jaw, where the root of the tumour was tied, and this discharged quite healthy pus; and also a small portion where the ligature of the carotid remained, which we all thought would safely separate. Without, however, any particular course, hæmorrhage took place early in the morning, and, on the house-surgeon being called, was suppressed: but he had lost a large quantity ot blood. It did not flow *per saltum*, and was not abated by pressure below; consequently, there could be little doubt of its being a refluent hæmorrhage. The day before he had noticed a pulsation in the temporal.

8th.—9 A.M.: Early on the 6th there was a recurrence of the hæmorrhage—half a pound supposed—but stopped by light pressure; not at all controlled by pressure on the carotid below. A compress moistened with collodion was laid on the part, and secured by straps of adhesive plaster. There has been no recurrence of the hæmorrhage since, and everything appears favorable.

14th.—No recurrence of the hæmorrhage. The collodion compress not separated.

21st.—Everything going on well. Made out-patient.

In the middle of August he had an attack of peritoneal inflammation, but recovered.

September 13th.—There is no vestige whatever of the tumour, but all is sound and healthy.

May, 1852.—This man has gone to Jersey.

November, 1858.—I heard of this man being alive; so he could not have had malignant disease, and, indeed, the length of time (eleven years) before the operation goes to the same point.

The preparation is in the museum.

The next case I shall give is a highly interest-one, graphically narrated by my friend and colleague Mr. De la Garde in the St. Bartholomew's Hospital Reports, vol. iii.

CASE 3.—John G——, of Ashton, a healthy farmer's boy, aged twelve, had a fibrous tumour, the size and shape of a pullet's egg, lying, as it seemed, on the left sterno-cleido mastoideus muscle, about two-thirds up. It was said to have been there ten years. It was felt so superficial, and moved so freely, that no complication was suspected.

Oct. 16th, 1847.—The skin, some fibres of the platysma myoides, and the cervical fascia were divided from above downwards and forwards. The tumour was covered by a thin layer of muscular fibres, increasing in thickness towards the sides; in short, it was embedded in the muscle. The loop of the superficial nerve was raised and held up. The fibres of the muscle were then separated and reflected, exposing the smooth surface of the tumour. Dissecting behind it, with the intention of turning it out of its bed, I found its inner face irregularly noduled. The nodules were long, and, acting like pedicles, accounted for its mobility. They went through the muscle, and were connected by dense fibrous attachments to the sheath of the jugular and carotid, and thence across towards the transverse processes of the vertebræ. These I followed until the carotid could be felt beating in front of my finger. A double ligature was then passed under the tumour and divided. On tying the fibrous band, between a pedicle and the sheath of the vessels, excessive nervous disturbance ensued. The boy did not lose consciousness, but the pulse became irregular, the pupil contracted and dilated convulsively, there was trismus and opisthotonos, with extraordinary jactitation of the occipito-frontalis and of the upper extremities, and a total loss of the power of swallowing. Whatever was put into his mouth flowed out again. Amongst other means tried was an enema of opium and assafœtida, which I think did him good. We thought him dying, but the tetanoid spasms ceased in half an hour, and the other symptoms soon after. Then the tumour was drawn out, and the fibrous band included in the ligature cut through by curved button-scissors, thus separating a body which might have excited irritation from the neighborhood of the pneumogastric and sympathic nerves. The second ligature was tied without any alarming symptoms, and then the tumour was taken out. There was not much bleeding, but several small arteries were secured. He was tranquil afterwards, took light food without difficulty, and had his bowels regulated.

24th.—All the ligatures had come away. He went out quite cured on Dec. 2nd.

It may be fairly asked why the ligature which produced such dangerous disturbance was not immediately removed. The answer is plain. The convulsion was violent and unceasing; the knot was tied tight at a great depth; it was amongst parts of vital importance, a wound of which might have caused instant death; and the fibre of nerve presumed to be included must have been already crushed beyond remedy.

He kept up an acquaintance with the nurse for several years, during which time he remained in perfect health.

I was present at this operation, and I can fully endorse the accuracy of Mr. De la Garde's statement.

CASE 4.—E. P——, aged eighteen, a very healthy young woman, had a tumour under the angle of the jaw. It felt hard and nodulated, slightly movable, with evident attachments deep under the angle. In the course of the operation it was found imbedded in fibres of the posterior belly of the digastricus and mylo-hyoideus muscles, and had firm attachments to the sublingual gland, which was removed with it; *the cornu of the os hyoides and the pharynx.* The descendens noni was laid bare, and there was great difficulty in dissecting it off the pharynx, a wound of which would have been a serious complication. The structure of the tumour was at the time considered doubtful. It was very hard, had a *raclé* and a distinct capsule. It had been slow of growth—eight years.

In this case I had the carotid compressed to keep the arterial branches empty, and thereby more out of the way of the knife. The preparation is in the museum.

CASE 5.—February 2nd, 1848. A fine sailor, aged sixty-four, had a large tumour situated in the upper part of his neck, and under the angle of the jaw. Rather than leave him to certain death, it was thought right that my colleague, under whose care he was, should attempt its removal. But although every care was taken, and by far the larger part laid bare, it was found that the greatest risk would be incurred if followed to its deepest part, and it was agreed to cut away all the tumour which was cleared, and unite the wound over the remainder. Here comes the ethical part.

Had the attempt been carried further there was a great chance that the man's life would have been brought to a speedy if not an immediate termination, a risk which was run in one at least of the preceding cases (J. S.) Whereas, by the other course, his life might be expected to endure for a considerable period; and life under, all circumstances is of such value to most, that it is rarely parted with as long as it can be preserved. At all events, it gives an interval for performing many most important duties. The subsequent history of the case is as follows:—

February 26th.—The sore, at first very large, has now greatly contracted.

April.—He is out of the house, and looking well.

May.—There has been a great increase.

This case terminated, I apprehend, fatally, as might have been expected. But his life was probably prolonged considerably by the course adopted; for even if the whole tumour had been removed, there is perhaps much reason to doubt whether, at his age, the subsequent history might not have been as fatal as in No. 1.

These and probably most tumours attack particular localities. I will mention another where, as well as in the groin, and angle of the jaw, fibrous tumours occur almost with equal risk—I mean the axilla, of which I shall offer the following examples:—

Case 6.—Nov. 16th, 1837. A healthy-looking young man had a tumour, the size of an orange, in the axilla, implicated with the latissimus dorsi and teres major muscles, and greatly interfering with the motion of the arm. Its duration was three years, and latterly it had increased rapidly. the operation consisted in dissecting it off the tendons of the latissimus dorsi and teres major, and it was necessary to remove a part of these tendons with the tumour. It approached the axillary artery very closely. The subscapularis and circumflex arteries, which were also closely attached to the tumour, were wounded and tied. The tumour was very solid and white, the capsule hardly distinct. He made a good recovery, and was reported in June, 1838, perfectly well. The preparation is in the museum.

Case 7.—The following case I chiefly give, not so much from the locality itself as from the fact that I knew her to be alive many years afterwards: —Miss I—— had a large tumour connected with the teres major and latissimus dorsi. She was not unhealthy, and no cause could be assigned for it. The nature of the tumour at the time was supposed to be cancerous. In the centre there was a foul, but imperfect suppuration. It closely adhered to the muscular fibres, of which a few were removed with it. I knew her to be alive a few years ago, and perfectly well. The preparation is in the museum.

The next case I shall give occurred in a different region, but so great was the hæmorrhage that it deserves notice with reference to an observation I shall make.

Case 8.—July 13th, 1853. D——, aged forty-eight, had a large fibrous tumour, weighing one pound and two ounces, which extended from the lower part of the occipital region, where it reached nearly to the right ear, down the cervical spine. Its structure was densely fibrous. It was surrounded by a well-defined capsule, which was extremely vascular, and with which the dense fibrous and muscular structures of the back of the neck were intimately connected. The tumour evidently contained many vessels, whose section left an appearance like that of the dots in the white substance of the brain. (I mention this because, as far as my experience has gone, it is a very singular fact.) There was a most copious hæmorrhage during the operation from numerous arteries, and one, probably of enlarged size (the right occipital), was divided. It may be added that, in this case, the hæmorrhage was so profuse and extensive over the whole capsule of the tumour that I may literally say that I operated under blood, as it was useless to tie the numerous vessels.

The observation I should make in reference to this tumour is that the hand of an assistant should follow that of the operator, and flatly pressed upon the surface of the tumour, prevent such a flow of blood until the whole is removed. The man made a good recovery, and went out to harvest at the end of August. The preparation is in the museum.

The preceding cases have considerable independent interest, and also possess many characters in common. More or less round or oval, they were situated under the angle of the jaw, in the groin or in the axilla, with one exception. Internally, in structure they greatly resemble each other, though a little varying in color and hardness. Most of them threw out out-shoots connected with the surrounding tissues; bone may be especially mentioned; and their attachments consequently were very deep. They were surrounded by capsules, more or less dense or complete; on the inside, indissolubly united with the texture of the tumour; externally, with the surrounding tissues, especially muscular and tendinous fibre; *and were in every instance in juxtaposition to the most important arteries and nerves.*

The danger and difficulty, and even the impossibility in some cases, of removing these tumours may be readily estimated by these facts, and the descriptions of the operations. The copious hæmorrhages necessarily attending them, from the division of the large arterial branches and the vascular nature of their capsules, constituted important elements of this difficulty. Generally speaking, they were slow of growth, and at an early period when small, might have been removed with comparative ease. A very important point presents itself. To what extent are the malignant or innocent? Nos. 1 and 5 were undoubtedly malignant—the first in the highest degree; while the histories of Nos. 2, 3, 6, and 7 were traced for a sufficient period to warrant the belief that they never recurred, and I may also express my belief that the other cases were equally fortunate.

The most remarkable circumstance is, that there was no *à priori* evidence which would distinguish Nos. 1 and 5 from the others. In No. 1 the tumour had begun to degenerate, and had become malignant, pervading the system, while in No. 7 there was also an internal degeneration, but she has remained perfectly well. The two cases, Nos. 2. and 5, may perhaps be considered as bearing on those singular cases which have been so ably described as recurrent, in some of which the disposition to wear out exists, in others not.

Tumours of precisely the same characters in themselves occur in other regions; and without speaking of those which are internal, or in the testis, I may refer to those deeply seated in the salivary and mammary glands, or in common parts, of which I purpose to send a short notice in continuation of this memoir, and at the same time a few remarks on their diagnosis and prognosis.

The preceding group consists of cases remarkably resembling each other in many important respects, and, as relating to the surgery of the disease, deserves especial attention. But fibrous tumours of similar intrinsic characters occur where they are neither complicated with muscle, tendon or bone, or contiguous to arteries of first-rate importance. They are found in the midst of glandular structure, as in the parotid and mamma, of which the two following are examples:—

Case 9.—A girl, aged seventeen, who was under the care of my friend and colleague, Mr. Kempe, had a tumour evidently imbedded in the parotid. It was removed on April 29th, 1863, with a considerable atmosphere of gland, with which its capsule was intimately connected. Its sections showed a dense white homogeneous surface, similar to the cases already related.

I apprehend that these tumours, when situated in the parotid gland, have been denominated "parotid tumours," as if they were a distinct species; but I would beg to refer to Case 4, where a tumour, similar in all essentials, was situated under the jaw, in the midst of muscular structure and in close contact with the pharynx.

CASE 10.—A healthy young woman had a tumour about the size of a small marble, oblong, situated in the upper part of the left breast. It was very free, and gave the idea of a fibrous tumour. I operated on August 22nd, 1857. Of course there was no intention of removing the mamma. It was found imbedded in the gland. It had a distinct capsule, and its section was nearly white and solid. The preparation is in the museum.

These two cases are given merely to show that fibrous tumours, precisely similar in character to those in the first group, occur in glandular structure, quite independent of any other condition, but may be modified in some slight degree by the influence of adjoining tissue, a circumstance which, I believe, applies to all tumours. I have seen the tumours, probably originating in gland, extend themselves to the neighboring muscular structure: thus, from the parotid to the masseter muscle, in a case operated upon by Mr. Kempe on May 18th, 1861.

In addition to pure fibrous tumours, we have them variously combined, but especially as fibro-cystic. These are frequent in the female, as in the mamma, ovaries, and uterus; also in the male as in the testes. But it would be superfluous in me to offer any observation on a class of tumours which have been so well described of late. I must, however, be permitted to indulge in a very natural wish to make a well-deserved mention of a son, who had begun a most promising c reer, to be ended but too soon. The case was one of an immense fibro-cystic sarcoma, occupying a large portion of the external and internal lower region of the pelvis in the person of a girl, aged twelve, and stated to have existed from birth. There was no pain, but great discomfort; no impediment to the passing of the fæces. An oval incision removed a portion of the skin on the external part. There was some difficulty in dissecting it off the adjacent skin where pressure had caused it to adhere; in other places, where fat had interposed it was easy. The tumour was attached to both sacro-sciatic ligaments, but chiefly to the left. It had passed into the pelvis extensively, and protruded the os coccygis largely. It lay in close contact with the rectum, from which it was dissected, and when removed left an enormous chasm. To the wet preparation preserved in the museum, the following description is appended:—"That it was included in a complete external case of fibro-membranous envelope. Internally, there were many cysts enclosed in a thick fibro-membranous case. Within these were the most varied substances. One contained a large quantity of fluid, resembling red currant jelly and water, which sprung out when the cyst was punctured. One contained a considerable quantity of green glairy fluid. One contained a fluid resembling thick glairy pus. Several small ones not opened. There was a mass of dense fibrous structure; another mass consisting of what closely resembled cartilage of ossification. The matrix varied a good deal, but was of a mixed fibrous and adipose structure." She perfectly recovered.

The measurement of the cast taken before the operation was as follows:—Circumference, eighteen inches: greatest length from left to right, nine inches; transverse, eight inches.

I need not say that to have removed a tumour of such dimensions, and so situated, without wounding the intestine, which was so largely bared or the arteries which cluster around the sacro-sciatic ligaments, required no little dexterity. I shall only remark that it must be a question where this tumour originated. I have notes of others which were under the care of some of my friends and seem to have sprung from the tuber ischii or the ligament, and I suspect this must have originated in a similar situation.

It would be superfluous to offer any observations on the general diagnosis of fibrous tumours, so much has been lately done, and so ably. But in illustration of the diagnosis of this particular class with which we have been engaged, I will offer a few remarks, because it is clear to me that if their diagnosis had been generally understood, we should not see so many cases of the gravest description allowed to attain such a size, when their removal involves the most serious risk of life, or may be an impossibility. I am satisfied that the cause has been, that they have been mistaken for scrofulous glands; although so many circumstances denote the nature of the latter that, if fully investigated, the mistake could hardly occur. For constitution generally shows the character; so does the fact that the swellings are often multiple; so does the other fact, that scrofulous glands frequently vary in size, which these tumours never do, but to increase. The deep connexions of these tumours, when at all large, also indicate their nature.

It may be right to offer a few further remarks with regard to the capsular investments of fibrous tumours. They form a very important part of their organisation; they, together with the globular character of the tumours, constitute the ordinary distinction between fibrous tumours and cancers; they seem to limit the influence of the fibrous tumour, while the absence of any such limit in cancer allows them to taint all the surrounding tissues to an indefinite extent; and in proportion as the capsule is more or less perfect, it appears to me, is the *probability* of the disease being localised. The exact relation of these capsules to the substance of the tumour within, and also to the tissues without, with which they are connected, may perhaps have been specially described, but I am not aware of the fact. Their removal with the tumour at all events ought to be complete. The capsules of fibrous differ widely from those containing some other tumours, as the adipose, which may be easily shelled out; while, with respect to these, the contiguous tissues should always be removed with them, although to a small extent only. It may also be right to observe, that in many of these cases the capsules are not only in close juxtaposition with large vessels, but are very vascular themselves, involving a considerable amount of hæmorrhage during the operation, as in Case 8.

In reference to the operation, I may state that considerable advantage will arise from the adoption of a similar plan of treatment as in Case 4—namely, that of compressing the artery on the cardiac side, so as to keep both trunk and branches as empty as possible, not only to lessen the hæmorrhage when any are divided, but to keep the whole more out of the way of the knife.

Still, keeping in view the locality of these tumours, it is but too certain that we sometimes have true scirrhus under the jaw; but the difference in these is easily discoverable. They are the result of taint communicated from a cancer in the under lip; but it is very remarkable how seldom this taint occurs in proportion to the frequency of such cancer. I may mention that, in the course of my professional life, three instances only have occurred to me, albeit my operations on the lip were numerous; and I may add that I know of no case in which the disease recurred in the cicatrix. These three instances were those of a patient in the hospital, an officer in the navy, and an innkeeper. Before operating in these cases I had examined the glands very carefully. No doubt they were tainted, but I failed to discover the mischief; and I may add that the officer had consulted Mr. Lawrence, who strongly advised the operation. Nothing could be more horrible than the open cancer which afterwards occurred under the jaw, while the lip remained perfectly sound; nor could anything be more wonderful than that, while the excavation was deeply going on, nature still preserved life by sealing up the vessels, and pushing aside, and not destroying, the nerves on which life depended. The fact that in three only of these cases were the lymphatic glands tainted raises the question whether this arises from the less virulence of the poison in these cases, or the greater power of these glands in disarming the secretion of its poisonous qualities. For if we compare the infrequency of the taint as produced from the lip with the frequency of that which occurs in the axilla from the breast, we cannot but be struck with the great difference. Is it not possible that in the very early stage of cancer of the breast similar conditions may apply as just stated with regard to the lip? And if so, does it not legitimately follow that the removal of a suspicious tumour of the breast cannot be undertaken too early?*

To return to the diagnosis of fibrous tumours under the jaw: it appears to me that they cannot be confounded with cancer, since cancer does not seem to occur here except in conjunction with that disease in the lip. As to the diagnosis of cancer in the breast and elsewhere, although when deeply situated it may be difficult, yet in the majority of cases the implication of the skin will declare its nature to be cancer. In either case the removal of a doubtful tumour at the earliest possible period would be the prudent course; while if, in the operation, that tumour was found to possess a distinct capsule, our opinion of its nature would probably be determined, and so the removal of the whole mamma be deemed unnecessary.

Connected with this subject, it may be a question as to the possibility of dispersing fibrous or even scirrhous tumours. My own experience will hardly justify me in offering any opinion on the point; but it is very important, inasmuch as the operation is often too long delayed, in the hope that it may be rendered unnecessary. I feel it right, however, to mention briefly the two following cases:—

A married lady, the mother of several children, had a tumour in her breast, which, by a very able surgeon much interested in her case, was considered as probably scirrhous. After a very considerable period it disappeared, under the use of one part of the iodide and two parts of the lead ointment.

An unmarried lady, of middle age, residing in an adjoining county, was by very considerable authority considered to have a tumour of the same character, which also dispersed under the same plan of treatment. But they may have been merely enlarged glands, or temporary indurations, no evidence being afforded.

The subject of cancer is one of immense interest, and at present it obtains the attention of several surgeons of ample experience and great ability. There is only one remark of my own which I shall press into the service, but that remark, albeit of imperfect application, still may deserve some consideration. In the course of more than forty years' hospital practice, during which a very large number of old ulcerated legs came under my care, I cannot remember any instance of cancer of the breast having existed; and, conversely, I cannot recollect any case of a patient with mammary cancer having an old-established sore leg. The experience of one individual is far too limited to ground anything more than the suggestion that the experience of other hospitals and of other surgeons should be obtained on this point, and certainly the opinion of many as well as my own that the establishment of issues after an operation with this fact (if fact it should prove).

I may incidentally mention the plan I have pursued in removing encysted tumours. When adherent to the skin, or when the cysts are feeble, they are very apt to rupture in the attempt to dissect them out, and it then becomes a tedious process, sometimes ending in a portion of the cyst remaining; this originates a fungus, which, it is true, may be destroyed by potassa fusa. I was for many years in the habit, when such rupture took place, of squeezing out the contents, and distending it with cotton wool, which very much simplifies the remainder of the operation.

Exeter, Jan. 1868.

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ON THE

# THEORY OF ALCOHOLIC STIMULATION IN PYREXIAL DISEASES.

By Francis E. Anstie, M.D., F.R.C.P.,

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Recent researches have made it necessary that the theory of stimulation in febrile diseases should be reconsidered, from its very foundation. The alimentary properties which had been entirely denied to alcohol by Lallemand, Duroy, and Perrin, are now shown to be very probably possessed, by that substance. But the more clearly this probability is brought forward, the more likely will it appear, on reflection, that its employment may be highly serviceable in some cases, and useless or hurtful in others of the very same disease; and that among the cases where it acts beneficially there may be great variations in the quantity required.

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* Mr. De la Garde has strongly advocated the early removal of tumours, in the Bartholomew's Hospital Reports, vol. iii.

The opinion to which I have always adhered as regards the destiny of alcohol in the organism appears now to be established by such a weight of corroborative evidence as to be put altogether beyond question. The assertion of the French observers, that alcohol is demonstrably eliminated, unchanged, in such large proportions as to warrant the inference that the whole dose taken is thus disposed of, is now satisfactorily disproved. This might fairly, I think, be said to have been done by the numerous experiments made by Dr. Dupré and myself. But the elaborate researches of Dr. Schulinus (vide *Archiv der Heilkunde*, 1866), which I had not seen at the time when my lectures were delivered, afford an independent support to the proposition which is not to be gainsaid. Henceforward the notion that ingested alcohol is got rid of in bulk, unchanged, must be definitely dismissed. Dr. Schulinus takes the extreme case of highly intoxicating doses administered to animals. He kills the animals within a few hours after the administration, and shows that while a trivial fraction only of the alcohol has escaped in the urine, a notable proportion, probably not less than one-fourth of the total quantity ingested, has ceased to be recognisable in the body *as alcohol*. Now, as the kidneys are certainly the chief channel for whatever elimination occurs (when the animal experimented on is quiescent), this amounts to a demonstration that a large disappearance of alcohol has taken place without the intervention of elimination. This being the case, it is needless to add that the missing portion must have been decomposed. It is clear that even in circumstances of downright narcotic poisoning by alcohol it is not by elimination of the poison, but chiefly by destructive decomposition of it, that the organism in enabled to recover from its depressing effects.

It is mainly, however, with the results which follow the use of non-intoxicative doses—i. e., of doses which do not produce even the slightest of the symptoms of narcosis—that we are concerned. I have striven to defend myself, on all occasions, from the possibility of being supposed to recommend the *narcotic* use of alcohol, either in health or in disease. Even the slight and trivial symptom of flushing of the face is a sign of a first degree of the poisonous action—viz., a vaso-motor paralysis,—and shows that at least we have touched the border line at which the beneficial action of alcohol ceases, and its poisonous effects begin. But I have equally maintained, and still-maintain, that it is quite impossible to argue *à priori* in diseased conditions, especially in pyrexia, as to the effect which a given quantity of alcohol will produce; and that relatively to the altered condition of the system in some forms of pyrexia, twenty ounces of brandy in twenty-four hours may prove no more narcotic or poisonous than two ounces might be to a person in health, or to the sufferer from a different type of pyrexial disease. As a matter of repeated observation it has become perfectly plain to me that the larger dose may, in a suitable case, produce less tendency to narcosis than the smaller dose would produce in a case of that kind which tends to run a simple and uncomplicated course towards spontaneous recovery.

Before proceeding further, it will be well to summarise the remarkable results at which we have now irrevocably arrived with regard to the effects of non-intoxicative doses of alcohol taken in health. It has been proved by the uniform result of a great number of experiments by Dr. Dupré and myself, that when a dose of wine, spirit, or beer, not containing more than one ounce and a half of absolute alcohol, is taken—more especially if it be taken in divided doses—the total elimination by the kidneys does not amount to more than a fraction, probably never more than half, of a grain, and that the elimination by skin and lungs is probably less. It has been proved also, that in certain cases of pyrexial disease only the same fractional elimination is produced when very large doses of alcohol are given; but this absence of notable elimination appears to be only observed when the dose (whatever its magnitude) has diminished the frequency of the pulse and the other signs of pyrexia, without producing the least stupor, flushing, or other signs of narcosis. On the other hand, a large amount of evidence has been adduced to show that, both in health and in febrile disease, a dose of alcohol, *whatever its amount*, which produces any signs of narcosis, immediately causes unchanged alcohol to be eliminated in notable, though still not in large quantities in the urine.

Since the publication of my lectures, I have been gratified by receiving additional evidence, from independent sources, which is confirmatory of these views. One very striking case I may mention here. Dr. Handfield Jones was good enough to ask me to examine the urine of a fever patient, to whom he had for some days been administering the very unusual quantity of twenty-eight ounces of brandy per diem; and this without producing the least narcosis, but, on the contrary, a marked improvement in all the symptoms. Dr. Jones had distilled this man's urine, and failed to find *any* alcohol in the distillate. I repeated the operation, with much care, and succeeded in detecting only a very minute quantity; certainly not more than would have been present in the urine of a healthy person after an ordinary moderate dose.

I invite the profession to repeat these experiments for themselves in all cases where large doses are given. The mode of research, as described in my second lecture at the Royal College of Physicians, is not difficult; and, at any rate, every hospital physician might carry it out with perfect ease in a large number of cases of febrile disease. I believe it will be found that the narcotic or injurious action of alcohol may be immediately detected by the distillation of an average sample of the twenty-four hours' urine; if renal elimination to the extent of one grain per diem be proved, I believe that we may confidently assert that a more or less poisonous effect has been produced; more especially if the sphygmograph gives the evidences, detailed in my first lecture, of lowered arterial tension.

It is impossible any longer to deny or ignore the fact that alcohol is a food. The quantities in which it can be taken without producing visible toxic effects would alone establish this, unless we were at liberty to suppose that it was rapidly eliminated in bulk. But this elimination is now finally disproved. And the fact of its destructive decomposition in the body is thereby proved;

for, although the resulting compounds have not yet been traced, a denial of the fact of decomposition would shut us up to the monstrous hypothesis of a progressive accumulation of unchanged alcohol in the blood and tissues. Upon no rational theory can the title of aliment be denied to a substance which is daily consumed in such considerable quantities by vast numbers of persons without any perceptible ill effect; which disappears within the body, and by irresistible inference must be presumed to be decomposed there, though in a manner as yet unknown; which visibly and sensibly adds to animal and organic energy, when taken within certain limits, and which even, in exceptional circumstances, can support life unaided for a considerable period.

But if alcohol be a food, under what class of foods can it be catalogued? By chemical composition it is a hydro-carbon. According to the theory of Liebig it should be a generator of animal heat. This is certainly *not* its immediate effect, for the researches of Dr. Ringer, which my own observations entirely confirm, have demonstrated that it steadily *lowers* the animal temperature during some hours, and to a slight degree. I need scarcely remind my readers, however, that the experiments of Edward Smith, and those of Fick and Wislicenus, even with the modifying corrections to which the latter have been subjected by the careful inquiries of Professor Parkes, have conclusively set aside the alimentary scheme of Liebig. It seems clear that one great function of the carbonaceous foods is the direct generation of motor muscular force by their destructive decomposition. And here comes in a new fact, observed by Schulinus, which is highly interesting. Schulinus proves that the general belief—which was especially supported by Lallemand, Duroy, and Perrin—that alcohol accumulates chiefly in the nervous centres and the liver, is erroneous. On the contrary, it appears that the diffusion of alcohol in the body is uniform; or rather, if anything, that the blood contains more, in proportion, of this substance, after ingestion, than any other part of the organism; and that alcohol is also distributed to the muscular tissues as plentifully as to the nervous centres.

With the knowledge of these facts, it is plain that our search for the oxides of alcohol must be entirely recommenced, and this time with the *certainty* that, however long or difficult, it will be at last successful. Every part of the organism, every secretion, in which we may expect to find the material products of a force-producing decomposition of a hydro-carbonaceous food must be explored; nor am I without definite expectations of success in a particular direction, which I need not at present indicate. On the present occasion, it is particularly desirable to show of how little worth is the argument, so frequently urged against the alimentary character of alcohol, that it does not immediately increase animal temperature. A most important series of researches by Dr. Ringer, which he has kindly allowed me to read in anticipation of their publication, conclusively proves that even the most undoubted and typical foods are equally with alcohol, entirely devoid of any heat producing qualities, at least during several hours after their ingestion.

The force which is evolved by the decomposition of food in the body does not appear in the first instance to take the form of caloric, except to such an extent as may be necessary to maintain the animal temperature without serious loss. There is no reason, therefore, why the decomposition of alcohol may not be as truly productive of organic and animal force as is that of any other food. Let us examine, in the light of this probability, the facts of a case like that remarkable one which I have quoted from Dr. Handfield Jones's practice, in which so large a quantity of brandy as 28 oz. daily was taken, with the simple effect of raising vital power and calming febrile excitement. In such a case one cannot but suppose that for practical purposes the whole of this large quantity of alcohol was rapidly decomposed, with the immediate effect of generating force; since almost none of it appeared unchanged in the secretions; whilst, on the other hand, its retention as alcohol in the blood would necessarily have produced visible narcotic depression of the nervous system in the highest degree. Considering that in a patient suffering under the acute stage of fever scarcely any bodily functions but those of organic life are going on, one must suppose that the force produced by the decomposition of the alcohol would be applied mainly to the maintenance of function in the muscles of organic life, the organic nervous centres, and in the secreting glands.

These functions are necessary to life, and, in the absence of assimilable food, the force required for their support must have been obtained at the expense of destruction of tissues. So much, therefore, of the alcohol given as could be applied to this economic process must be considered as directly preservative of the integrity of the organism, and in favor of the patient's chances of life. On the contrary, an excess of alcohol remaining unchanged in the blood must tend to act as a direct depressant to the nervous system; in the absence, therefore, of narcotic symptoms, one must conclude that such excess did not exist in any important degree.

There is another mode, ingeniously suggested by Dr. Barnes, in which it is possible that alcohol is utilised within the body in certain acute diseases. Alcohol is an antiseptic of considerable power, and it is quite possible that in certain virulent fevers it may exert that kind of influence upon certain morbid matters in the blood, the rapid oxidation of which is producing or maintaining the severity of the symptoms.

If we now examine the symptoms which are produced by an excessive or untimely administration of alcohol in febrile disease, we shall find them to be all explicable on the supposition of a poisonous action of unchanged alcohol on the nervous system; whether exerted directly upon the nervous tissues, or indirectly through damage to the blood. The earliest symptoms of narcosis appear in the vaso-motor system, as evidenced, for instance, by flushing of the face and increased rapidity of the heart's action from diminution of the arterial resistance. Simultaneously with, or even before, the occurrence of these symptoms, the increased elimination of alcohol commences; and one can scarcely doubt that this is due to vaso-motor paralysis, allowing distension of small vessels and increased excretion of water, carrying with it an accidental excess of alcohol, which betrays itself to the discrimination of the chromic-acid test. On this supposition the discovery of a notable excess of alcohol in the urine above that observed in the case of healthy and temperate persons, may be reasonably supposed to mark the first stage of the poisonous action of alcohol. And, if this be true, its value as an indication for the omission or diminution of the wine or brandy must be considered very great. It is a far more accurate test of a harmful action of alcohol than mere increase of pulse-frequency; for this may be due to natural phenomena of the disease.

I think the adoption of a purely chemical test like this, and of a purely physical test like the estimation of arterial tension by the sphygmograph, would be very much more likely to settle the dispute as to what is the proportion of cases of acute disease in which alcohol is useful, and what are the doses which are appropriate to particular stages of the disease, than any other kind of investigation. But, indeed, I do not expect that any hard and fast average line can be laid down; my very case is, that every fever or pneumonia patient must be treated according to his own special symptoms, and that these symptoms must be appreciated by accurate methods of observation. Such phenomena as mere redness or heat of skin, which some rely on, are simply no indications whatever, either for or against alcohol, until it has been tried. Greatly lowered arterial tension *is* a rational indication for alcohol: and if the experimental administration of the latter heightens tension, the treatment will be sanctioned *pro tempore*. And if the first twenty-four hours' urine gives only the signs of minute elimination of alcohol the sanction will be confirmed. On a future occasion I shall endeavor to show that the statistical arguments which are frequently brought forward against the use of alcohol in acute disease are of necessity misleading, and are infected with sources of fallacy which render them valueless.

Wimpole street, Jan. 1868.

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# THE SULPHITES IN TYPHOID OR ENTERIC FEVER.

By R. S. Cross, Esq., M.R.C.S., L.S.A.

I beg to lay before the readers of The Lancet an account (abridged as much as practicable) of an outbreak of typhoid in the neighborhood of Petersfield during the autumn of 1866. Its history commences with the return of a family from Mentone in the first week of July, one member of which, a little boy seven or eight years old, was only just convalescent from an attack which had kept him there far into the hot season. From all I could gather, the disease was of a much more virulent kind than is usual in this country, the condition of the patient having been, in the later stages more especially, like that observed in low typhus; his father described the state of his tongue and mouth as if a coat of varnish had been applied and allowed to dry on. Almost in despair of recovery, he was started homewards, and the change appeared to produce immediate improvement; for, although the weather was intensely hot all the way, and in London, where he remained a week after his arrival in England, he got home quite recovered. On the 27th July we (Mr. Whicher and myself) were called to the lady's maid, a thin, weak-looking woman of about forty. Her symptoms were referred to the heat and fatigue of the journey after long watching and nursing by the bedside at Mentone. At this time, the end of her first week's indisposition, I confess to have had some suspicion of the true nature of her malady—a suspicion abundantly confirmed by the appearance of the same symptoms in the lady of the house a week later, in two of the maidservants at the end of another week, then in the gardener's wife (who had been called in to assist in the kitchen), and also in the cook, butler, and others of the household—seven in all.

To go on with the history of the progress of the malady. At the end of six weeks, a woman from the parish, who had volunteered to wash the clothes in a cottage at the end of the garden, failed with it, and it was discovered afterwards that some blankets she had washed had somehow escaped disinfection. Three of her children took it in succession; then a man his wife and five children, in a cottage some three hundred yards from where she lived, and so it spread; in all about thirty cases occurred, from the age of three to seventy-five. Most of the cases were very severe ones, the largest number appearing to have the malady in the most intense form. One boy, about nine years of age, in particular, had to learn to talk, &c., and seemed imbecile for some time. The aggregate duration of all the cases was ninety weeks.

The symptoms ushering in an attack were a worn expression of face, a sort of pinched look, great lassitude, pains in the head, back, and limbs, sometimes rigors, almost invariably diarrhœa, either with or without pains in the stomach and bowels, nausea of active vomiting, total loss of appetite, some thirst, sleeplessness, pulse quick, ranging between 90 and 120; tongue varying with the intensity of gastric symptoms; where active would be covered with a yellow coating, edges and tip dark red; where less intense, looked sodden, large and white; always tremulous; and this condition together with the quick pulse and worn look, often existed many days, and almost weeks, before the patient complained very much, or gave up and took to bed. Nothing varied so much as the character and duration of the premonitory stage.

In one patient, the lady of the house, there was positively no warning. She became paler than usual, and so rapidly weaker and weaker, that on the third night of my attendance upon her, with a perfectly clean tongue, without diarrhœa or sickness, and in the entire absence of any dread of the disease, she was only saved from sinking by the unsparing and sustained use of brandy (two-thirds of a bottle this night), and such was the character of her illness throughout.

In another case, that of a stout plethoric girl of eighteen, the malady was ushered in suddenly by symptoms of most active biliary disorder, soon followed by the wildest delirium, requiring restraint for many days to keep her in bed even; both lung and intestinal complication following in the progress of the case, which was very long and doubtful. In many cases, the tongue was for days together dry and hard like toast, abdomen tympanitic and tender, and the lungs the seat of frequently recurring congestion, engorgement and solidification, or whatever term may best describe a condition in which a very large portion of either one or both of these organs is often perfectly useless, if not worse; sore mouth, bleeding from the fauces, tongue, and gums, loss of almost the entire mucous covering, with deep ulcerated fissures, constituted a dreadful aggravation of suffering in numerous instances. The treatment up to August 19th had been such as is usually followed. In every case where indicated, a single dose of calomel, or an emetic, was administered at the outset, and always with advantage. At this period, not being much impressed with a belief in the power of any known mode of ordinary treatment to do much in combating the disease, and not daring with six or eight people about me as good as dying to adopt the do-nothing plan, I determined to try the sulphites, the more especially after a careful perusal of the very able and exhaustive article from Dr. de Ricci in *Braithwaite's Retrospect*, vol. 49. I prescribed the sulphite of soda in scruple doses every four hours in water, adding for the most part quinine in grain doses as the purely gastric symptoms disappeared and were followed by the toast tongue, and other signs of greater encroachment on the vital powers. There was a liberal, very liberal, allowance of wine, brandy, and beef-tea given, and the quantity taken every twenty-four hours by most of the sufferers was truly astonishing. We had two good nurses from the Institution in London, besides other help. It was just pouring down the three things before named day and night to keep the flickering lamp of life alight; and, without a single exception, just in proportion as the hand was stayed from any cause, either accidentally in the nursing so many, or in obedience to an order from me, based on some fear or suspicion of over stimulation, so did the jeopardy of the patient immediately increase, and time and again it seemed hopeless that the fuller use of the brandy bottle could be in time to snatch the sufferer from the very jaws of death. Some took a bottle of wine every twenty-four hours for three weeks at a stretch; and the way in which this was freely placed at my disposal by the fearless, intelligent master of the house, together with champagne, ice, grapes, and everything that could be thought of, elicited my admiration, as much as his tact, discrimination, and appreciation of symptoms at the bedside by day and night, deserved my warmest thanks, as the greatest possible help in the management of such a visitation.

In the treatment of the diarrhœa, or, more properly speaking, the repeated loose action of the bowels, which was such an invariably prominent accompaniment, I did not adopt either the astringent or castor-oil plan in their entirety. Whether or not the increased action in question be due to the elimination by the glandular and mucous apparatus of the intestinal tract of a morbid poison from the blood, or the disease itself consist in a primary affection of these structures of a specific kind, true it is, practically, that in every case there is, to begin with, a most serious invasion upon the powers of life; and the cardinal point in treatment is not to allow the patient to either do or suffer anything whereby the jeopardy arising from this great exhaustion might be increased, at the same time avoiding a too active interference—an interference, I mean, amounting virtually to arrest of what, up to a certain point, may be a salutary process, and can be after all but one of many circumstances adverse to life. I prescribed now and then an astringent mixture, containing a small quantity of laudanum—in fact, the nurses were allowed to give a certain quantity of it to restrain a little when the actions were very frequent, particularly when occurring immediately after taking support of any kind. I am no stranger to the value of a dose of castor oil under some peculiar conditions of distended abdomen, &c.; but it is so nice a point that I verily believe a patient's life often hinges upon the fine discrimination as to its immediate applicability to the case under observation. Turpentine stupes were always going either to the chest or abdomen; and they seemed as valuable in one place as the other, never failing to relieve alike the over-burdened and sometimes painful lung, and the distended, flatulent, and uneasy belly. The subject is practically inexhaustible; but I will bring this part of my remarks to a close by saying that there was, with the exception of the patient verging on eighty, who had the fever after nursing her daughter and family for weeks, and who finally succumbed to bed-sores, no death.

I also used the sulphite as a prophylactic; a bottle of mixture was established in the house, and given in scruple doses three times a day to five people. Of these five one was the constant attendant on the lady, two were in the kitchen, another was a keeper, who came in and out, and the butler. The attendant, though in the sick room night and day for weeks, never ailed anything. Of the two in the kitchen, one never ailed; the other, the cook, who was always running in and out the sick rooms, had all the symptoms of the malady,—the worn look, the sickness and purging, loss of appetite, quick pulse, characteristic tongue, &c., but never gave in; used to lie down and get up, but never was absent from her post a day. The keeper, the husband of the woman who took it by washing, was less affected, and also kept his post. The butler hung in the balance for a fortnight or three weeks, then took to his bed, and was among the worst.

Much as I believe it, I am hardly in a position to assert as much, but my experience powerfully endorses the opinion expressed by M. de Ricci in the *British and Foreign Medico-Chirurgical Review*, April, 1867, p. 523, wherein he predicts "that eventually the treatment of zymotic diseases by the administration of the sulphites will be as fully recognised as that of cinchona."

All I trust is, that after a careful perusal of this paper, I shall not be thought to have intruded these very imperfect and crude observations (recorded necessarily in the midst of much to divert) altogether uselessly upon the notice of my professional brethren, to many of whom an opportunity for making a similar trial may not only never have occurred, but be long wanting.

To proceed. On July 30th, 1867, I was requested to see Miss——, aged twenty, residing at a distance of eight miles in a country house, the inmates of which were, and always had been, particularly healthy. I was told it was the third day of her being in bed, and the history of the case pointed simply to more manifestation of fatigue of late, in the face, as it chanced, of more than usual call and inducement for exertion. A dose of oil had been given three days prior to my visit, and had done well. On entering her room, the position in bed, her manner and appearance, voice, and expression of face, all reminded one of the impression of fever. The pulse was weak and quick, over 100; tongue sticky and coated; breath offensive; no appetite; bowels uneasy, somewhat fuller and more tense than natural; no action since that from the oil. She was unable to sit up in bed without help, or to remain long so without faintness. Ordered to take ten grains of sulphite of soda every four hours, and pills at night containing a mild dose of mercury with chalk, rhubarb, ipecacuanha, and hyoscyamus. To have beef-tea; claret-and-water to be given freely as a drink.

July 31st (next day).—Condition essentially the same, but weaker; pulse quicker. Ordered claret without water. Pills had acted twice; feared to repeat them in the face of so much exhaustion. To continue the sulphite.

Aug. 1st.—Much worse in every respect; pulse almost too quick to count, and the tendons of the muscles of the forearm were felt to twitch constantly under the finger, strongly enough to be seen also in other muscles; abdomen more distended, and slightly tender on pressure. Ordered turpentine stupe, a tablespoonful of brandy every hour in arrowroot, beef-tea, &c. Sulphite to be continued. Bowels rather relaxed.

2nd.—Much the same; in danger of sinking from hour to hour. Brandy increased to six drachms every two hours and the other two; two ounces of port wine to be given; beef-tea; sulphite continued. Bowels the same; slight cough. Remained the night.

With very little alteration, this condition prevailed up to the 9th, when, the bowels acting rather more frequently than I liked—the ingesta quickly passing through, almost unchanged,—I ordered a pill at night, containing half a grain of opium, half a drop of creasote, and one grain of camphor.

The chest symptoms had fairly set in, there being complete dulness on percussion and entire absence of respiratory murmur over the lower half of left lung, with slight pain, and that coarseness of breath-sound on the right side which I have noticed to be the sure forerunner of that alteration in the lung-tissue which occurs in connexion with the disease in question, as well as not unfrequently constituting a separate and distinct malady. Both sides of her chest were thus affected, and the turpentine stupes were applied again and again, always with marked benefit. The abdominal symptoms had appeared to decline from the first application of turpentine, and especially from the date of appearance of the chest symptoms; nor had the tongue been dry and baked for more than twenty-four hours before time sufficed for getting the system under the influence of the maximum quantity of stimulus. The creasote-and-opium pills were given occasionally, eight in all.

At this period—the end of the fortnight—an ounce of the sulphite in all had been taken. And with regard to the time of its continued exhibition, I am disposed to think it should be dependent on the period of the malady at which it is begun, and the power it manifests to control the progress of symptoms. M. de Ricci says that "the want of success which has sometimes been observed in the treatment of zymotic diseases by the alkaline and earthy sulphites is attributable to the fact that these remedies have not been administered early enough. If the treatment is too long delayed, the blood becomes so loaded with poison and deteriorated in quality as to be no longer able to perform its normal function; and then the sulphites are of no more service than any other remedies, because they cannot restore to life the dead blood-corpuscles. The sulphites should therefore be administered early, while still a large portion of the blood is in a healthy state, and capable not only of carrying on life, but of throwing off what has been rendered inert by the presence of the sulphuric acid." M. de Ricci attributes another source of failure to "the administration of hyposulphite of soda instead of the sulphites, and especially the sulphite of magnesia. The hyposulphite of soda is less efficacious than the sulphites, because, in the former, the greater part of the acid becomes oxidised in its passage through the animal economy, and appears in the urine as a sulphate; because, being a salt of hyposulphurous acid, it is a less active antagonistic; and because it often causes a troublesome diarrhœa: while the sulphites of soda and magnesia never produce such effects," And so on in the article in question.

To return to my patient. I discontinued, then, the sulphite at the end of the fortnight, and ordered a mixture of chlorate of potash, ammonia, cinchona, and chloric ether on the 14th, which was continued to the 20th. Somewhat later than this, the pulse having improved, and finding her at my visit somewhat flushed, feverish, and excited, I ventured to diminish one half of her stimulants; but I was only too glad to put it on again the next day, and lost three days most certainly by the experiment. And it appears to me most important to be very cautious about reducing the allowance of wine &c., allowing the patient to sit up in bed or make any exertion, or to take solids too soon. Castor oil was given twice: the first time at the end of a month from the time of her attack; and she was able to be down stairs and take carriage exercise at the end of six weeks from which point her recovery was rapid and complete.

The other case I was called to on Sept. 15th. I will be brief with it. A young man of twenty, stout, florid complexion, was a draper's assistant at a neighboring seaside town. Had been ill there three days. He was prescribed for, the medicine purging him freely. Had been ill a week altogether at the time of my being called to him after his removal home. He had all the symptoms of a severe attack of the fever in question. The lung-complication was thus early extreme on both sides. He became breathless on the slightest exertion, and almost fainted on my attempting to sit him up to examine his chest posteriorly. Ordered turpentine stupes, sulphite, beef-tea, wine, &c. The case went on to the 27th when he got rather suddenly much worse, I believe from neglect in the administration of support and stimulus. He was restless, with wandering delirium, dilated pupils, confusion about the head, &c. The mouth and fauces were covered with a thick coat of aphthous exudation. These parts were sponged out well with a solution of the biborate of soda, the hair was removed, and a mustard plaster applied to the nape of the neck; and he was ordered to take in the course of the next twenty-four hours a bottle of wine, and a tablespoonful of brandy occasionally. The next day he was much better in every respect, and continued to mend from that time, making an excellent recovery, and passing out of our hands well on the

16th of October: just one month ill. He took in all two ounces of the sulphite.

I could give a later case, in which the very early use of the remedy seemed to cut short the malady, and reduced the term of indisposition to but a fortnight altogether; but I forbear, having already, I fear, trespassed at too great length.

I should have mentioned that in all cases I had Burnett's solution kept in the utensils used by the invalids, these being removed immediately after use. Chloride of lime was kept going under the beds, and about the rooms and passages. I insisted on as much air as could be got, without placing the patient in a thorough draught. One of the quickest and best recoveries of the very bad cases occurred in the gardener's wife, whose bed was so situated (in a small room without a fireplace) that the wind blew in at the window upon her day and night; another, the boy before alluded to, the window of whose room was clean gone, a sack hung up doing duty for one, but which I often found down, admitting the wind, and sometimes the rain, on to the little fellow's bed, which was shared by a brother ill of the same disease.

I would observe, in conclusion, that to many the foregoing remarks may read more like an advocacy of the ultra-stimulating plan of treatment than that by the sulphites. To such I would say is it not necessary in all maladies to maintain the powers of life in such a way as shall give time and opportunity for remedies to take effect? and is not the degree of energy with which this support is supplied in direct proportion to the patient's need? The quantity of stimulus must not be measured by spoonfuls, but by the observation of how much is required to keep the patient alive and in a likely condition to be benefited by all other adjuvants, chemical and otherwise.

Petersfield, Dec. 1867.

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# PEROXIDE OF HYDROGEN AS A REMEDY IN DIABETES.

By John Day, M.D

The following short history of a case of diabetes, which had resisted all ordinary treatment for more than three years, and which is now rapidly yielding under the influence of peroxide of hydrogen, will, I trust, prove of interest to the readers of The Lancet.

In March, 1864, I was consulted by a married lady, aged thirty-six, the mother of two rather strumous-looking children. She was in the seventh month of pregnancy, and complained of intolerable itching and irritation about the external organs of generation, accompanied by a frequent desire to pass water. On inquiring further into her case, I found that she suffered from constant thirst and other symptoms indicating the presence of diabetes, and that the pruritus was probably caused by the irritating action of diabetic urine.

A chemical examination of the urine confirmed my diagnosis. It gave the characteristic dark sherry color when boiled with liquor potassæ. It readily fermented on the addition of a little yeast, and its specific gravity was 1040. I at once placed my patient on the diet usually recommended to sufferers from diabetes, consisting chiefly of meat, poultry, fish, eggs, greens, cauliflower, spinach, watercresses, &c.; milk, cheese, and butter, with only a small allowance of stale or toasted bread. Light colonial wines, similar to claret and Burgundy, were also allowed, and lime-water with milk, pure rain-water, soda-water, and weak animal broths, were recommended for allaying the thirst. The medicinal remedies employed comprise nearly all that have ever been recommended in diabetes, such as opium, ammonia, creasote, permanganate of potash, a weak solution of phosphoric acid, &c.

In June, she was delivered of a dead child, after having arrived at the full period of gestation, and for a short time the diabetic symptoms entirely disappeared.

In September, 1866, she was again delivered of a dead child, at the full period, and again the diabetic symptoms entirely subsided, and for about the same time as on the former occasion,—perhaps about two months.

From this time the disease began to assume a more alarming character. The patient, naturally a large, well nourished woman, weighed, when in health, *nineteen* stone; now she weighs *fifteen* stone. This I believe to be a very unusual weight for a person who has been passing large quantities of saccharine urine for more than three years. She is the daughter of an asthmatic mother, and her father died of heart-disease. She is not phthisical, nor is there any history of phthisis in her family. In addition to her unusual weight for a diabetic patient, there are two other peculiarities in her case. She has never had a very dry skin, and she has never suffered from constipation; indeed, I know as a fact that, until the last six or eight months, she had had a kind of chronic diarrhœa, the bowels acting eight or ten times a day, and the more frequently and freely they acted the better she felt. This relaxed state of the bowels had existed ever since she recovered from an attack of dysentery, fifteen years ago.

Aug. 10th, 1867.—On visiting my patient this morning, she said, "Doctor, I am no better; your medicines and your dietary-scales have done me no good. The thirst is almost beyond endurance; can you give me nothing to relieve it?" At this time the case was most unpromising; she was passing, on an average, five quarts of highly saccharine urine every night. She had to get up every hour to pass water and to drink, and she looked depressed and worn from want of sleep. She had several small carbuncles on her back, and her legs and feet were so cold that she could not do without bottles of hot water in the bed.

While pondering over the hopeless condition of my patient, it occurred to me that if I could oxidise the sugar that had been taken up in the general circulation, it would be an approach towards the natural mode of its elimination by the lungs. With this object in view, I gave half-drachm doses of ethereal solution of peroxide of hydrogen mixed in an ounce of distilled water, three times a day.

To enable me fully to explain the theory on which I base my treatment, would occupy far more of your valuable space than I could justly claim. Schönbein believes that peroxide of hydrogen is $H\,O$+antozone, and that the blood-corpuscles possess, in a very high degree, the property of decomposing it, and of transforming its antozone into ozone, without, in themselves, undergoing any very rapid change; and he further believes that ozone is the only condition in which oxygen possesses any active combining properties. Assuming these views to be correct, we should possess in ethereal solution of peroxide of hydrogen, which would be rapidly absorbed, a ready means of destroying, by oxidation, the sugar in the blood, and of also maintaining the animal heat, which, in the treatment of diabetes, is an important consideration. I may observe, that what is sold by Mr. Robins as Dr. Richardson's ozonic ether is, in reality, a solution of peroxide of hydrogen in ether. This may be readily proved by adding a few drops of it to a weak solution of chromic acid: a beautiful blue color will be the result, caused by the formation of perchromic acid. This preparation is in every respect similar to that which I have been using, and in the therapeutical effects of which I have now had some year's experience.

I commenced the use of this new remedy on August the 10th, and as the following extracts from my case-book will show, with most gratifying results to the patient:—

Aug. 12th.—From 10 P.M. to 10 A.M., passed about five pints of urine. Previously, for many months, the quantity of urine passed during the night averaged five quarts[*].

13th.—Quantity of urine passed during the night, rather less than three pints and a half. Thirst not so urgent.

14th.—Quantity of urine passed during the night, two pints and a half. Urine strongly acid; specific gravity 1046. Thirst much less urgent.

16th.—Quantity of urine passed during the night, rather less than forty ounces. The patient very much improved in every respect. I give her own words:—"I have no thirst now; no more than I had in olden times. I feel that I am cured if it will only last."

17th.—Still improving. Quantity of urine passed during the night, thirty-six ounces; specific gravity, 1040. Went to bed at ten, and only got up once during the night. Before taking the new medicine, had to get up every hour during the night for months past. Used to be so cold as to require bottles of hot water to spine, legs, and feet. Since taking new medicine, has been quite warm and perspiring. No unnatural thirst. Had been taking an opium pill night and morning up to this date. Pills to be discontinued, and no other medicine used but ethereal solution of peroxide of hydrogen. No alteration has been made in the diet for a long time past.

18th.—Quantity of urine passed during the night, thirty-four ounces. Patient states that she has not for a long time had such calm and refreshing sleep as she has experienced since taking the new medicine.

19th.—Quantity of urine passed during the night, thirty ounces. Specific gravity, 1038. No thirst. Before commencing the new medicine, often drank twenty glasses of water during the day. Now perspires freely after every meal, and after drinking anything. Always feels moist and warm, particularly when in bed. Slept well last night.

20th.—Quantity of urine passed during the night, twenty-seven ounces; specific gravity, 1035. Slept well.

21st.—Quantity of urine passed during the night, thirty-two ounces. Feels perfectly well. No thirst.

22nd.—Quantity of urine passed during the night, forty ounces; specific gravity, 1040. Bowels act once a day. Did not have to get up once during the night. Thirst gone; drinks nothing at night.

23rd.—Had a good night; did not have to get up once. Took no drink during the night. Quantity of urine passed during the night, twenty-one ounces; specific gravity, 1032. To use her own words, "My thirst is gone—I don't know what thirst is."

24th.—Had a good night. Only passed eighteen ounces of urine from 6 P.M. to 10 A.M.; specific gravity, 1040. No thirst.

25th.—Quantity of urine passed during the night, twenty-two ounces; specific gravity, 1040. Did not wake once during the night.

26th.—Feels quite well, but passed rather more urine during the night; quantity, one quart seven ounces; specific gravity, 1040. Drank some sweet punch yesterday, which may account for the increase of urine. Did not have to get up in the night.

27th.—Slept well. Quantity of urine passed during the night, twenty-four ounces; specific gravity, 1040. Says she feels as well as ever she did—never felt better in her life.

Yarra-street, Geelong, Australia, Aug. 1867.

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## THE KERION OF CELSUS: A PHASE OF TINEA TONSURANS.

By Tilbury Fox, M.D. Lond., M.R.C.P.,

Physician to the Skin Department, Charing-Cross Hospital.

Dermatologists would be guilty of no little unfairness did they refuse to confess that the clinical descriptions, as far as naked-eye observation is concerned, of the diseases of the skin given by the ancient medicine-men were, as a rule, remarkably accurate, and in many instances peculiarly happy. Moreover, whilst few things that could be seen escaped the search and scrutiny of the unaided eye, the profounder details of minuter phenomena, which have been comprehended only in our own day, seem sometimes to have been *almost* inferentially appreciated, and the microscope and its revelations have in cutaneous medicine enabled us in many matters scarcely so much to re-interpret as to develope and unfold the pathology of morbid states, thence deducing, to us, more satisfactory plans of therapeutics. As far, however, as descriptive narrative is concerned, progress is altogether less marked. I have elsewhere attempted, in the case of elephantiasis and lepra, to illustrate the general proposition, that the diseases of the skin, as they exist to-day, are the same in character as those which prevailed in earliest times; their causes and nature are *now* differently explained. In the "Dermal Pathology" of Celsus many examples in point are afforded. I will now give one of them, which has a direct practical interest for us in a clinical point of view.

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[*] In this case I find it impossible to gain a correct knowledge of the amount of urine passed during the day. All the future measurements will represent what was passed from ten at night to ten in the morning.

In his fifth book he describes a disease to which he attached the name of *kerion*. Mr. Wilson renders Celsus thus: "Kerion is a genus of ulcer, so named by the Greeks from its resemblance to the honeycomb. There are two species. One is whitish, and like a furuncle in shape, but larger and more painful. When it maturates, it presents a number of foramina through which exudes a glutinous and purulent humor; but it never suppurates thoroughly. When opened, it is found to contain more corrupt matter than a boil, and is also more deeply rooted. It is seldom met with elsewhere than amongst the hair. The other kind is smaller, prominent, hard, broad, greenish, pale, and more ulcerated, since the foramina correspond with every individual hair, and give exit to a glutinous palish humor of the consistence of honey, or resembling the juice of the misletoe, or sometimes oil. The pain and inflammation are severe, so as in some instances to excite a sharp attack of fever." Mr. Wilson truly observes that there is no difference between these two cases except in *degree*. The disease may, therefore, consist of large or several small patches.

One or two more particulars may be added. The disease may commence suddenly, with more or less loss of hair. The hair breaks off from over a circular area of greater or less extent, when swelling speedily follows. The glands of the neck are sometimes enlarged, and very tender; they may even suppurate The swellings of the kerion are tender, as we have said; but they also look uneven and feel boggy without there being pus present.

What, then, is this kerion? Have we such a disease amongst us at the present day? Or did Celsus given an incorrect or fanciful picture of some of the more common eruptions of the scalp? Or was kerion simply a subcutaneous abscess of the scalp? There can be no doubt that Celsus was quite correct and particularly fortunate in the description which he gave of the disease; and that it represents an unusual condition of a very common form of disease.

The characters of kerion are: (*a*) prominence; (*b*) its perforation with foramina—i e., the mouths of the hair-follicles; (*c*) the outpouring of a mucoid fluid; (*d*) the non-suppuration of the swelling; (*e*) the looseness of the hairs; (*f*) the after-baldness; (*g*) the presence of a fungus.

I have lately met with several most perfect examples of kerion, illustrative of the different stages of the disease. The first I saw at the request of a medical friend, who was in doubt as to its nature. It could not be regarded as well-marked kerion, certainly, but this was its earliest phase. It occurred in a child, who had a patch about the size of a five-shilling-piece on the side of the scalp, from which the hair had suddenly fallen off, the nurse having discovered it only two days before I saw it. The whole patch was remarkably prominent and peculiarly upraised, and this was seen to be due to the distension and enlargement of each individual follicle. On removing some of the hairs from the patch, they were seen to be surrounded and infiltrated with nothing more or less than a mass of sporules of the tricophyton. The swelling of the whole patch in this case was so remarkable as to make the disease appear something quite different from the ordinary dry, flat patch of tinea tonsurans. In July, a boy was brought to me with half-a-dozen round prominent places on his scalp, apparently, at first sight, subcutaneous abscesses; but the characters of kerion, as described by Celsus, were present. In a third case, the mother remarked that the discharge was so sticky that she could not wash it off. In each of the last two cases there had been constitutional disturbance of slight extent, and the patches, which were partially bald, were excessively tender. In the second case they varied in size from that of half a crown to double that size. They looked exactly like uncircumscribed, boggy, subcutaneous abscesses, produced by the application of irritants to the patches of tinea tonsurans. In all these and similar cases the hairs which here and there stud the upraised and swollen patch, and those which edge it round, are broken off close to the surface, and, as in ordinary ringworm, filled with fungous elements unusually luxuriant. The hairs come away very readily; and if they are examined with the microscope their follicular sheath, in a more or less perfect condition, is often found attached; the gum-like material also closely adheres to them. Pus is not very abundant. The most careful inquiry fails, in most cases, to detect the evidence of the application of irritants as a cause of the unusual swelling and exudation. The peculiar sticky secretion is albuminous lymph. It seems to me that the fungus destroys the follicular sheath, that a large amount of irritation is set up, the glands of the hair-follicles are involved, and fluid is poured out for needed repair. This condition may run on to threatened suppuration. In plica polonica a similar kind of exudation is poured out into the hair-follicle, and infiltrates even the hair-shaft.

I regard the kerion, so accurately depicted as to external features by Celsus, as nothing more or less than tinea tonsurans which has become complicated by irritation, swelling and prominence of the hair-follicles, detachment of their follicular sheaths, and exudation of albuminous lymph. It is a wonder that this is not a more frequent condition in tinea tonsurans.

"Kerion," says Mr. Wilson, "must be regarded as belonging to the same group as trichosis and favus; representing, in fact, an inflammatory and pustular form of the same disease.......The phytiform disorganisation of trichosis and favus has not as yet been discovered in kerion; but we have no doubt of its presence, and that kerion must be added to the group of diseases of which that peculiar morbid phenomenon is the leading character." I am well acquainted with the fungus growth in kerion; and in examining the hair microscopically have been surprised at the amount of the fungus present.

Another clinical fact, then, I wish to point out is that kerion is only a complicated form of tinea tonsurans, that very little pus is present (were pus present the fungus would not be so luxuriant), and that it always commences as an exaggerated tinea tonsurans. Mr. Wilson notices "that it was complicated in two out of fourteen cases by tinea circinata, and tinea tonsurans in one; whilst a brother of one of his patients had the former affection, and a sister of another the latter." In one instance, kerion developed out of tinea tonsurans.

It seems to me very clear that unless we recognise the influence of the fungus which the microscope reveals to us, we cannot treat kerion successfully; we must trust entirely to empiricism for cure, but we may happen by chance to select a parasiticide.

The plan of treatment that suggests itself to the mind in the first instance would seem to be the employment of decidedly emollient remedies—poultices, and soothing applications—to subdue the inflammation. But this I believe to be unsound; for as in scabies complicated by many and various eruptions, we treat the scabies, and attempt to kill the acarus, so in kerion we should attempt to destroy the vitality of the fungus as the first step towards a cure. The plan is to pull out all the hairs. This will generally remove the greater portion of the fungus, for the hair and follicular lining come away together, and necessarily the spores imbedded therein. Then we may apply mild parasiticides, bichloride solution, or carbolic acid lotion, and the disease will rapidly mend.

Cases, then, of tinea tonsurans which are followed by swelling, prominence, and apparent suppuration of the separate hair-follicles in which the hairs are loosened and a glairy fluid exudes, constitute what Celsus described as kerion. The apparent severe inflammatory action should not deter us from destroying the true cause of mischief—the fungus. These cases are no new acquaintances of mine, and therefore I speak with some confidence. I would just remark that I am glad that it is possible to harmonise the statements of the ancient and modern physicians, to vindicate the accuracy of the former, and to add one little fact against the doctrine of the change of type of disease.

Finally, it is important to add one practical remark. I have seen these cases of kerion mistaken for subcutaneous abscess (nothing more likely, and nothing to be more avoided), and accordingly the swelling has been opened by the lancet, not, however, with any good result: a troublesome sore has remained: suppuration has been induced by the entrance of the air, and pus has burrowed beneath the scalp tissues. This result, though usually regarded as part of the natural course of the disease, has been brought about by the treatment. Left to itself kerion appears but very rarely to suppurate.

**Sackville-street, Piccadilly, January, 1868.**

## CLINICAL NOTES.

### No. II.

### PLEURITIC EFFUSION ON THE LEFT SIDE AS A CAUSE OF FLATULENCE AND DYSPEPSIA.

By S. O. Habershon, M.D.,

**Physician to Guy's Hospital, Etc.**

The prominence of *one* symptom of disease frequently leads the patient to form an incorrect opinion as to the nature of his malady, and inadvertently he may misguide his doctor. Pain in the chest, cough, and palpitation of the heart are often due to morbid conditions below the diaphragm; and the question, apparently a most simple one, whether the malady is above or below the diaphragm, is often difficult of solution, whilst of the utmost importance to the speedy recovery of the patient.

I need not comment upon the gastric symptoms produced by tubercular disease of the lungs chronic affections of the bronchi, and organic diseases of the heart,—they are well known; but instances are far more numerous than is generally supposed of *pleuritic effusion* on the *left side* producing severe dyspepsia; and the predominance of the gastric symptoms has led to incorrect diagnosis in many patients who have consulted me. When pleuritic disease takes place on the left side, and is *subacute* in its character, the pain is often almost forgotten by the patient in the more trying subsequent symptoms; the dyspnœa is less prominent than in the more acute affection. The symptoms may be briefly mentioned: There is failure in the general health, a sense of exhaustion and of weakness, inaptitude for exertion and for the ordinary pursuits of life; the tongue is often furred, there is a sense of weight at the stomach, especially after food, restlessness at night and the recumbent posture produces dyspnœa; the bowels are generally confined, pain in the left shoulder is often complained of, and the countenance loses its healthy clearness; one of the prominent symptoms is *flatulence*, the appetite is lost, and the patient sometimes states that the food does not pass freely from the stomach; the urine is scanty and high-colored. With these symptoms, many of which point to functional disturbance of the stomach, hurried and incomplete investigation will effectually misguide; but on examination of the chest the indications of pleuritic effusion are at once evident, as shown by extensive dulness, lessened tactile vibration, bronchial respiration and bronchophony; if the effusion be very great, the respiratory sounds are more distant, or entirely suppressed; the heart is pushed over towards the right side, and the diaphragm is pressed downwards.

The action of the stomach thus becomes mechanically impeded, but the connexion of the pneumogastric and the vaso-motor nerve in the chest and abdomen adds to this abnormal peripheral sensibility to morbid action.

Another point associated with the diagnosis of these cases is the fallacy connected with the temperature of the body; some cases of partial pleurisy are not marked by elevation of the thermometric heat. However valuable the thermometer may be in pneumonia, in fevers, and some other diseases, in inflammation of a subacute character of serous membranes, such as pericarditis, peritonitis, and pleurisy, the temperature of the surface cannot be depended upon as a correct guide. A short time ago, a young gentleman suffered from severe pain in the left side after exposure to cold. The pulse was quiet, respiration was accompanied with severe pain, the skin was cool to the hand, the tongue slightly furred; the temperature was taken accurately with the thermometer, but it did not exceed the normal standard. No friction sound was audible, because the costal pleura was not affected, only the diaphragmatic. On the following day the fibrinous effusion had extended round the edge of the lung, and a friction sound was distinctly made out; still there was no elevation of temperature. The disease soon subsided without serous effusion. I advert to this case from among many others, to show that in this form of subacute serous effusion the febrile symptoms of more acute disease are not developed, and the disease is often at first supposed to be rheumatic, or it is called "neuralgia."

A gentleman placed himself under my care some months ago, who had been under treatment for five or six weeks, and who had been informed that his ailment consisted in disorder of the stomach and liver. The left side of the chest, however, which was half full of fluid, had not been examined. The patient was thin and cachectic, the appetite impaired, the countenance slightly sallow; there was no dyspnœa, but great inaptitude for ordinary exertion and pain at the scrobiculus cordis were complained of. The symptoms of indigestion entirely disappeared with the absorption of the fluid.

In another instance, a gentleman nearly seventy years of age, was with difficulty persuaded that the cause of his distress was effusion into the pleura; a sense of weight at the stomach, with a feeling of obstruction there, and great flatulence, with failing strength, were his principal symptoms.

I have observed two mistakes in the treatment of these cases. The one is, that the digestion being disordered, the tongue furred, &c., the liver is regarded as being "out of order," and *mercurial medicines are given* to "set it right;" but unfortunately, with the effect of *increasing* the exhaustion, the cachexia, and the pleuritic effusion. An equally disastrous error is to suppose that, because the patient appears exhausted, he is to take large quantities of alcohol; in other words, "to be kept up by stimulants." By an excess of alcoholic stimulants the healthy reparative action is interfered with, the elimination of effete material is checked, important glands become functionally disordered, and the absorption of the morbid effusion is thereby retarded. I do not wish to be understood that stimulants may not assist, if properly given; but if administered in accordance with the principle that because the patient has a feeble pulse, and seems exhausted, he is "to be kept up," they lead to most unsatisfactory treatment, and prolong the illness of the sufferer.

Brook-street, Feb. 1868.

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### ON A CASE OF

## EXCISION OF, AND AMPUTATION AT, THE HIP-JOINT;

### RECOVERY.

By J. H. Barnes, Esq., M.R.C.S.,

Surgeon to the Liverpool Workhouse Infirmary.

John M'K——, aged eleven years, two or three weeks previous to his removal to hospital on the 6th of July, 1867, was in the street on his hands and knees, when another boy jumped suddenly on his back, causing "his right leg to give way under him, and producing an acute pain in his hip." For a few days he was able to limp about his room; but the pain increasing, and the leg commencing to swell, he was obliged to keep his bed.

On admission into hospital, there was found to be great swelling and enlargement of the limb from the hip to the knee. The thigh was abducted and rotated over that of the sound side, on which he constantly lay; and any effort to change the position of the injured limb, or examine it minutely, gave rise to such suffering that it was not persisted in. He was, therefore, placed on a diet suited to his weak and depressed state, and the hip and thigh enveloped in poultices. Fluctuation becoming in a few days more pronounced, an incision was made on the inner aspect of the thigh, just above the knee, this being (in the position in which he kept his leg) the most depending point. From this opening pus was freely discharged, and the swelling at the hip daily diminishing, a more satisfactory examination of it became possible. Fracture of the neck of the femur, with dislocation of the head on the dorsum ilii, was diagnosed; and as the patient, in spite of everything that could be done to keep him up, was rapidly getting weaker, being so emaciated that his forearms were bi-concave and translucent, I resolved on at once excising the hip-joint.

The patient, on the 15th of August, having been carried into the operating-room and placed under the influence of chloroform, I made a horseshoe incision down to the joint, commencing at a point posterior to the great trochanter, and terminating it at a corresponding point anteriorly. On clearing the parts and introducing a finger, I felt, as I expected, the detached and dislocated head of the femur, and removed it. The thigh-bone being now projected through the wound, a portion of it, all that was seen to be denuded and diseased, was removed. On a further examination, however, of the shaft of the bone, it became evident that any effort to save the limb would be fruitless, and I determined at once on its removal.

Two difficulties now met me. In the first place, I had only two assistants, and the patient was so anæmic and prostrate that the slightest loss of blood would at once be fatal; and, in the second place, the posterior flap had been spoilt by the previous incisions, and the patient was such a skeleton that it was no easy matter to discover tissue sufficient to form a respectable stump from.

The first difficulty was obviated by placing an abdominal tourniquet over the aorta; and the second, by ignoring the first incision and suturing it partly up afterwards. So complete was the stoppage of the circulation through the aorta that the vessels were taken up and ligatured without the loss of a drop of blood. Before the conclusion of the operation, however, the patient apparently quietly died. All signs of animation ceased; the chest was perfectly still, and no pulse could be detected at the wrists. Thinking the pressure of the tourniquet on the abdomen might be producing an injurious effect, I at once removed it, and with the aid of mechanical and stimulative assistance suspended animation was slowly restored.

For the following notes of the case I am indebted to Dr. Robertson, to whose care and attention the recovery of the patient is greatly due.

First day after operation.—Pulse feeble and rapid; much thirst, and little sleep.

Second day.—Pulse 120, stronger; slept better; takes food well. Stump healthy.

Third day.—Pulse 130; bowels loose, and ejected matter very offensive; had a moderately good night. Stump commencing to discharge.

Fourth day.—Pulse 140; feverish, and little sleep.

Fifth day.—Pulse 135; skin hot. One of the ligatures came away.

Sixth day.—Much the same. Two more ligatures came away.

Seventh day.—Feverishness gone; bowels still loose, with dark offensive motions.

Eighth day.—Patient extremely emaciated and weak. Ordered iron and quinine, and pancreatic emulsion.

Ninth and tenth days.—Œdema of the left foot and leg, which is painful and contracted at the knee-joint. Ordered to be kept in cotton-wool.

Eleventh day.—Femoral ligature came away. Troublesome cough, with much expectoration. Left leg pits on pressure up to the knee.

Twelfth, thirteenth, and fourteenth day.—Pulse 120; sleeps well, and eats well. From this date the patient, who was placed on an unlimited amount of the best claret (this being the only stimulant given), steadily improved. The œdema of the leg subsided; and at the beginning of October he was able to sit up dressed, and the wound had almost entirely healed. He now (January, 1868) only waits for an artificial leg in order that he may walk home. The stump has long since completely ceased to discharge and closed up, and the patient declares himself to be stouter and healthier than he was previous to his injury.

So powerful is the force of example, that another boy in the same ward suffering from hip-joint disease persists in begging and entreating that his leg might be removed also.

Liverpool, Jan. 1868.

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## AUTO-CLINICAL REMARKS
## ON
## INJURY TO THE RETINA FROM OVER-WORK WITH THE MICROSCOPE.

By George Harley, M.D., F.R.S.,

Physician to University College Hospital and Professor of Medical Jurisprudence in University College.

In order to answer the many kind inquiries that are being made regarding my case, which has excited a more than usual amount of professional interest, in consequence of my prolonged sojourn in total darkness, I shall feel obliged by being allowed to mention in the columns of The Lancet that I purpose very shortly publishing a full account, not only of the manner in which the injury to the retina occurred, but also of the course and treatment of the subsequent attacks of glaucoma and retinitis. Thereby I may, perhaps, not only be able to save the eyes of some of my fellow-workers with the microscope, but even interest and instruct the practical as well as the scientific members of the profession.

That a person should have been, like myself, kept seventeen months in a darkened room is nothing extraordinary, but that nine out of the seventeen months should have been passed in *total* darkness, is if I am rightly informed, perfectly unique. Few, I believe, even among the best-educated persons, can realise the meaning of this term "total darkness;" for what is ordinarily called "total darkness" is, to a person with the eyes in the condition of hyperæsthesia in which mine were, nothing more than subdued light. I shall not, however, take up valuable space by attempting to define "total darkness" further than to remark that, during the nine months passed in this condition, all light was so effectually excluded that not only did I never see a human face, but even the outline of my own hand was equally unknown to me.

My stay in darkness, quite irrespective of the beneficial effects it had on the retinitis, was not altogether unprofitable from another point of view; for it enabled me to make some curious physiological observations regarding the possibility of the human eye acquiring, under certain circumstances, the power of seeing in the dark—a power heretofore considered the special attribute of some of the lower animals. When I say that I could distinctly distinguish objects in a room so dark that in it persons with perfectly sound eyes could not even see their hands before them, but a faint idea of the reality is thereby conveyed; and until the case can be reported *in extenso* I fear to mention the isolated facts lest they should be regarded by some as mere fairy tales.

When the condition of hyperæsthesia of the retina had subsided—that is to say, after the period during which light had been totally excluded from the eyes—some remarkable visual phenomena were observed. From among these may be mentioned that my eyes had lost the power, not only of distinguishing colors, but of appreciating distance. For the first month after I began using my eyes, all blues, greens, yellows, and other light colors appeared perfectly white; whereas all greys, browns, reds, and other dark colors seemed perfectly black. In fact, there were to me but two tints, white and black; and several weeks elapsed before I was able to distinguish the different hues in the carpet, and a still longer period before I could exactly estimate the various shades of the same color.

The other curious optical effect which afforded me much amusement and instruction was that of appreciating distance; for the long exclusion of light had reduced me to the condition of the child who has not yet learned whether objects be without or within his reach, and the process of gradually re-educating my eyes was not devoid of scientific interest.

On first removing the bandages, in what was regarded by my friends as a dark room, although it appeared to me an exceedingly light one, the effect was most extraordinary. The room had the appearance of a long and broad passage; chairs, tables, and sofas all seemed to be lengthened out, and at a great distance from me; even the person who was standing close by my side appeared yards off; and when I looked at my own hands and feet, I could not refrain from laughing at the ridiculous appearance they presented, my arms and legs seemed so long, and the hands and feet so distant. I presented, in fact, to my own mind, that appearance of elongation which is often represented in children's picture books; and it was curious to notice how, day by day, the retina regained the power of correctly estimating size and distance.

A few years ago an absurd story went the round of the papers, of the possibility of obtaining the photograph of a murderer from the retina of the murdered individual. It seems to me that the man who invented this strange story must have been for a time in total darkness; for I can readily imagine it occurring to the mind of one who had partially undergone my experience, since, on the first few occasions of using my eyes, the impressions of objects were strangely retained by the retina. On one occasion, I calculated the exact time that a single impression would last, and after (for the sake of experiment) keeping the eyes unused for seventy-two hours, suddenly opened them, looked at a very marked pattern of wall-paper (blue lozenges on a pale-figured stone-colored ground) for about half a minute, then closed them again and noted the effect. For no less than twenty-five minutes the pattern remained distinctly photographed on the retina, even to its minutest detail; the only difference being that the bright blue lozeges were of an equally bright yellow, and the pale stone-colored ground black. During the twenty-five minutes this photographic image, if we may so call it, lasted, I was not only engaged in conversation with friends, but kept the body in active motion by walking round the table.

Effects such as the afore-mentioned and other subjective phenomena of light, which, however, could only be properly understood by aid of a diagram, are chiefly interesting to scientific men, but there are others of deep import to the practical physician; such, for example, as

1st. The influence of remedies on the circulation as observed by the introspection of the retina.

2nd. The possibility of diagnosing grave retinal injury by introspection with the aid of the microscope, when the ophthalmoscope proves totally inefficient even in the most experiened hands.

3rd. The value of therapeutic agents and of hygiene both in hastening or retarding the healing powers of an injured vision.

These and many other facts I shall chronicle, and for this purpose have kept the most careful notes of my case, as well as a number of rough sketches of the appearance the eye presented at various times, both during its progress towards disease and towards health.

In conclusion, as I am constantly being asked who suggested the experiment of total darkness, I may remark that the idea originated with myself. Indeed, with the exception of the first three months of my illness, which period I made but little progress towards recovery, I entirely assumed the responsibility of my own treatment; and not only was it without the concurrence of my medical friends, but in direct opposition to their views, that I ventured upon the experiment of total darkness, one and all of them fearing that a prolonged exclusion of light, and consequent disuse of the retinæ, would not fail to be followed by blindness—a prophecy which, fortunately for me, has not been verified.

**Harley street, January 22nd, 1868.**

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# A CASE OF POISONING SUPPOSED TO HAVE OCCURED FROM EATING THE BARK OF THE LABURNUM.

By John Wilson, Esq., M.R.C.S.

R. N——, a boy six years of age, was attacked Sept. 19th, soon after midnight, with symptoms which in all probability arose from having taken an irritant poison. He first complained of pain in his left side, over the region of the stomach, and of feeling sick. About one A.M he vomited, and continued to do so at intervals of about half an hour until death, which happened somewhat unexpectedly soon after seven A.M. The vomited matters were thin and frothy, and not very copious until just before death, which was preceded by a slight fit. The only solid substance that was noticed among the vomited matters was something like a plum, which came away with the first vomiting. He slumbered each time between the attacks of vomiting, but was somewhat restless, and could not lie easily except across his father's body. At half-past five his father, who is a carpenter, went to work, as the child was sleeping, and he thought him better. A quarter of an hour after, he told his mother he would have some tea if she would get up and make it for him. He then sat up by himself on a chair by the fireside, asked if he might have a holiday, and, though growing more and more powerless, continued talking about how he would spend the day in company with his brother, a sailor, who had just come from sea, until the attack which ended his existence. Soon after the symptoms came on, a tablespoonful of castor oil was given to him along with some camomile-tea, all of which he vomited. There was no purging. His parents, not considering the case of that severity to need medical assistance, did not send till after death, and consequently I have to depend entirely upon them and their neighbors for an account of the symptoms. The child was strong and well previous to the symptoms coming on, and was considered the healthiest in a family of robust children. He ate his dinner as usual, consisting of meat and potato pie; and his tea at six o'clock, consisting of bread and tea, which was his last meal. A neighbor had that day been clipping a laburnum tree which overhung the entrance to his garden, and on the morning when I arrived the twigs and cuttings still strewed the ground immediately surrounding the cottage where the child lived. A branch was handed to me by one of the neighbors, and I was told that the child had been several times during the afternoon peeling the twigs with his teeth, and that the last time he was seen doing so was about six P.M., just before tea. Other children had been peeling them with their fingers; but he used his teeth, as he had a bad finger. He sat up till eleven P.M., unusually late, as his brother had just returned from sea. He appeared to be in good health, and was full of play during the whole time, and slept soundly for an hour after going to bed.

I saw him about half an hour after death. The body was warm; the joints of the lower limbs flexible; but the jaws were clenched, and the joints of the upper extremities beginning to be rigid; face pale and placid; lips and tongue blanched; conjunctivæ natural; pupils dilated.

The abdomen was very much swollen, the bulging commencing abrubtly below the margin of the ribs; it was tense and tympanitic. In all other respects the appearance of the body was natural as during life. The examination of the body was made twenty-eight hours after death. Body well nourished; rigor mortis well marked; back and dependent parts livid; abdomen very much discolored, the portions of skin the most discolored being of a bright-green. In other respects the appearance of the body was the same as at the last inspection. On first opening the abdomen bloody serum gushed out, of which the peritoneal cavity contained a quart or more. The livid hue of the small intestine contrasted with the pale, healthy color of the transverse colon. The œsophagus, stomach, upper two-thirds of duodenum, and the whole of the large intestine were healthy, and quite free from any trace of inflammation; but the small intestine showed an intense degree of inflammation, from the lower part of the duodenum to the end of the ileum, where it suddenly terminated. The peritoneal surface of the inflamed portion was smooth and shining, and there was a remarkable white network, which appeared to consist of the larger blood-vessels free from blood, showing out strongly upon a dark-red ground. Liver, spleen, pancreas, and all the various omenta, were quite healthy, and in a natural condition. The liver had the post-mortem purple staining of its exterior. Gall-bladder empty and flaccid. The whole alimentary canal, from œsophagus to anus, was slit up and carefully examined. The mucous membrane of œsophagus, stomach, and upper two-thirds of duodenum, was perfectly healthy. At the upper part of duodenum Brunner's glands were conspicuous for their size and whiteness. At the lower part of duodenum signs of inflammation commenced, and soon reached a high pitch at the upper part of jejunum. The depth of color, brightest and freshest (using the terms comparatively) at the upper part of the inflamed tract, and most livid about its middle part, was maintained to the distance of about seven feet from the cæcum, where it began to decline. The mucous membrane of the whole tract was lined with a slight fibrinous exudation, of the same depth of color as the membrane on which it was deposited. From the point where the color began to decline, the mucous membrane, still lined with exudation, became gradually drier. In the mucous membrane of upper part of jejunum, precisely at the part where the transverse folds were most developed, the solitary glands were enlarged and elevated above the surface, and imparted a feeling of hardness to the finger passing over them. In the rest of the small intestine they were not even visible to the naked eye. The whole of the inflamed portion of intestine contained, in greater or less quantity, bloody serum to the amount altogether of two or three pints. Under the microscope, it showed traces of blood-globules, but not sufficiently numerous alone to give the deep-red color to it. About midway between the stomach and cæcum was about a foot of intestine containing minute red firinous shreds, as much as would have filled a wine-glass, lying loose in the serum The mesentery shared in the inflammation of the intestine which it supported, and was of a deep-red color, infiltrated with serum, and emphysematous. At the junction of duodenum with jejunum it contained a mass of enlarged glands of the same deep-red color as the intestine at that part. The stomach contained about a tea-cupful of semi-liquid pulp mixed with bile, and an extraordinary number of pieces of potato, most of them about the size he might be expected to take at a mouthful, apparently unchanged by cooking, but slightly softened at the outside by lying in the stomach, and which he had evidently "bolted." The upper part of the duodenum contained a few of the same hard fragments and a trace of meat. Some of the pulp, with a piece of one of the fragments bruised, showed under the microscope, besides starch-granules, muscular fibre, numerous sarcinæ, little green plates (some squarish and others oblong), and pieces of vegetable cellular tissue of the same color. A drop or two of serum from that part of the intestine which contained the fibrinous shreds showed under the microscope fragments of vegetable tissue in great variety, among which little plates, as seen in the contents of the stomach, were abundant. The whole tract of colon and rectum contained healthy fæces at intervals. The blood was fluid. Heart healthy; no fluid in pericardium. Lungs healthy; a few slight adhesions at right apex. On detaching the skull-cup the dura mater appeared smeared with blood in the position, and from laceration, of the middle meningeal arteries. Sinuses empty. Membranes healthy. Veins between the convolution distended with blood. Ventricles natural, both as regards the various parts which formed their walls and the fluid they contained. Brain-substance firm; contrast between white and grey matter strongly defined; no bloody points.

As the vomited matters had been all thrown out, no light was derived from this source as to the nature of the ingesta of the previous day, nor did the post-mortem examination reveal what the poison was. Not a vestige of bark or any other part of the tree could be found among the contents of the stomach or intestines, which would hardly have been the case had any considerable or even small fragments been present, as there was no other solid matter, except that already mentioned, with peculiarities by which it could easily be identified. The limitation of the inflammation to the small intestine was particularly interesting; suggesting, among other suppositions, that the poison, whatever it was, had either passed too rapidly through the stomach to excite inflammation in it, or that inflammation was prevented from taking place by the presence of food.

Whitby, Yorkshire, Jan. 1868.

# A CASE OF PIROGOFF'S AMPUTATION AT THE ANKLE, WITH A NEW FORM OF ARTIFICIAL FOOT.

By Christopher Heath, F.R.C.S.,

Assistant-Surgeon to University College Hospital, and Teacher of Operative Surgery in University College. London.

The following case of chronic disease of the foot, ending in amputation, illustrates the various phases which the disease may undergo, and the illusory hopes of cure without operation which may from time to time sustain both the patient and the surgeon. In selecting Pirogoff's amputation as the final remedy, I was influenced by my experience of the admirable results which that operation affords in cases where the os calcis is sound, and the ease with which the operation itself is performed. Without depreciating Mr. Syme's operation, which when done in strict accordance with his directions, answers admirably, I am convinced that Pirogoff's is the easier proceeding, and that, when properly performed, the result is incomparably better than after Chopart's amputation, the shortened foot of which is an inconvenience both to the patient and the instrument-maker who has difficulty in obviating pressure upon the extensive cicatrix.

In the performance of the operation, so long as the os calcis and the malleoli are cut obliquely in opposite directions (as originally proposed by Mr. Tudor), I think it a matter of no importance whether the calcaneum be sawn from above or from below, and in fact am in the habit of teaching the two methods alternately to my pupils; but in either case it is important to reflect the tissues slightly before applying the saw, so as not to leave too much bone in the flap. I much prefer opening the ankle-joint to removing the foot with the malleoli, as has been recommended. The amount of suppuration following the operation is exceedingly small if the cut surfaces of the bone lie in easy apposition, and especially if, as in this case, the solution of chloride of zinc, recommended by Mr. De Morgan, be employed.

Mr. H. W——, aged sixteen, came under my care in April, 1866, with well-marked disease of the transverse tarsal joint, the result of an injury to the foot two years before, which had been lighted up again by a sprain two months since. The synovial membrane of the joint was much swollen, but there was no fluid; the foot was hot and swollen, and the patient could not bear his weight upon it. I strapped the foot with twilled calico plaster, and ordered him to procure a pin-leg with a support for the knee, so as to keep the foot off the ground. By the middle of May there was evident fluctuation, and I therefore had a moulded leather splint fitted to the foot, so as to keep it perfectly quiet, and opened the abscess below the external malleolus. From this incision feeble granulations sprang up, which were dressed with iodine lotion, and he took the syrup of iodide of iron. In September, after some weeks' absence in the country, three openings had formed below the *inner* malleolus, each of the size of a shilling. No dead bone could be detected at either side by a probe, which passed deeply between the bones of the tarsus. He now took cod-liver oil, and used a nitric-acid lotion to the sores. Under this treatment the foot made slow but steady progress. A small piece of bone came away in November, and by February, 1867, the wounds were nearly closed, and the foot had become more shapely. The patient could bear a good deal of weight upon the foot without pain, but still employed the splint and pin-leg by my direction. Early in April, however, a swelling appeared in the sole of the foot, near the metatarsus, which I opened; but two other openings formed spontaneously, and the patient's health began to give way. He spent May at the seaside, but at the end of that month I found a threatening of an abscess on the dorsal surface of the metatarsus. In June, though the general health had much improved, and the patient had gained weight, his foot was worse, all the old sinuses having reopened, and a fresh one formed on the inner side. The swelling over the metatarsus had not increased; but a fresh point of fluctuation was present on the inner side near the ankle-joint. No grating was present in the joints. Under these circumstances, I requested a consultation with Mr. Erichsen who entirely agreed with me as to the propriety of an immediate operation.

I performed Pirogoff's amputation on the 15th June, with Mr. Erichsen's assistance, opening the ankle-joint, and sawing the calcaneum from above in a slanting direction. At one part the cut surface looked a little congested, and I therefore took a second slice. The surface of the wound was bathed with a solution of chloride of zinc (forty grains to the ounce), and the flap came readily into apposition, being retained by a few sutures, and a strap of plaster beneath the heel.

The foot after removal showed advanced disease between the astragalus and scaphoid bone, but little between the calcaneum and cuboid. The ankle-joint was healthy, except that the articular cartilage of the astragalus was discolored on one side, opposite the last-formed abscess. There was a large abscess above and below the metatarsal bones, two of which was bare.

Mr. W—— made an uninterruptedly good recovery, and was able to go on to the sofa on the tenth day. On the twelfth day he stood up and walked a few steps, with the limb supported on his old pin-leg. A fortnight after the operation he went to a relative's house at Ealing, a part of the incision having skinned over, and the remainder having granulated healthily. On the 2nd July I found him greatly improved in personal appearance, and the wound making good progress; but a small abscess had formed an inch above the healed incision on the inner side, which I opened. By the end of the month the wound was quite healed, and the stump perfectly sound and able to bear any pressure; but the sinus remaining from the abscess still slightly discharged. He returned to his home in the country, and came up in November to see about an artificial foot, which Mr. Pratt, of Oxford-street, contrived with great skill, so as to obviate the unsightly thickening of the ankle often seen in apparatuses of the kind, the foot at the same time being light and inexpensive, and enabling the wearer to walk in an easy and natural manner.

FIG. 1.

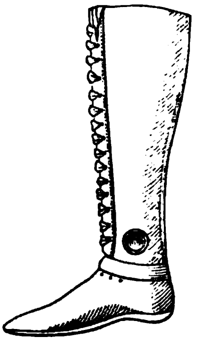
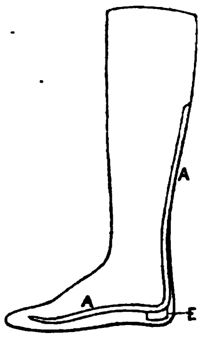


FIG. 2.



The apparatus (Fig. 1) consists of a leather socket, carefully moulded to the lower part of the limb, well lined and made to lace up the front; the round aperture shown in the drawing being made to obviate any pressure on the site of the sinus already described. The foot part is made of soft padded leather, so that a boot may be easily drawn over it, and its softness does away with the uncomfortable "wooden-leg feel" sometimes experienced by a living foot on coming in contact with an artificial one. The sole is made of stout leather, and from it a double spring (Fig. 2, A) passes beneath the foot and behind the leg, to be attached to the socket. This gives ample elasticity in walking, and prevents the toe catching on the ground; whilst a pad of thick india-rubber (B) beneath the heel prevents any shock being transmitted from that part.

Cavendish-place, January 1868.

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# ON
# LITHOTOMY BY A SEMILUNAR EXTERNAL INCISION.

By John E. Erichsen, F.R.C.S.,

Senior Surgeon of University College Hospital, and Holme Professor of Clinical Surgery.

Sir W. Fergusson, in the very interesting and valuable lecture on the above subject, published in the last number of The Lancet, has broached several questions of great practical importance. It is not my object to enter into a discussion of these, for in the main I agree with all that has been written by that distinguished surgeon on the subject. But as I removed last summer a large calculus through the semilunar external incision, I have thought that a record of that case might not be an uninteresting addition to the remarks that have appeared in this journal on that subject. Like Sir William, although practising, as a rule, lateral lithotomy by Cheselden's method, as modified by Liston, I have for a long time had grave doubts whether it was really the best way of getting into the bladder, and more especially of extracting a large stone out of it.

These doubts led me to determine to adopt the Transverse Bilateral method in the first favorable case that presented itself, and which was as follows:—

A. G——, sixty-seven years of age, was sent to me at University College Hospital by Mr. Willing, of Great Wakering, Essex. He had suffered from symptoms of stone in the bladder for three years, and had much muco-pus in the urine. The report from the case-book is as follows:—

Aug. 1st.—Mr. Erichsen passed a sound into the bladder, and detected a large stone, apparently two inches or so in length. The patient being in good health otherwise, it was determined to perform lithotomy.

The operation was performed on the 7th of August. The patient having been placed under the influence of chloroform, Mr. Erichsen passed a grooved rectangular staff into the bladder; and the stone being at once felt, he proceeded to perform the operation after the bilateral fashion. A transverse crescentic incision was made in the perineum. The centre of the incision was half an inch above the anus, and each extremity of it about the same distance from the tuber ischii. The dissection was carried down in the line of the superficial incision to the central point of the perineum, so as to separate the bulb from the rectum. The scalpel was then thrust onwards into the groove of the staff, through the membranous urethra, and just in front of the prostate, its blade being directed upwards. The knife was now drawn backwards out of the wound, cutting upwards as it was withdrawn, so as to form a vertical incision in the superficial structure, of about an inch in extent, in the middle line, and communicating with the centre of the crescentic cut originally made. The knife being withdrawn, a lithotome caché was introduced along the groove of the staff; and by the withdrawal of this (the handle of the instrument being at the same time depressed) both lateral lobes of the prostate were divided to the extent of about three quarters of an inch—the distance to which the instrument had been previously adjusted. The lithotomy forceps was then introduced into the bladder, and the stone was at once seized. The withdrawal of the forceps was effected with some little difficulty, owing to the large size of the stone, and to the necessity of changing the direction of its axis in their blades. The calculus on removal was found to be of an oval form, with a long diameter of about two inches and three quarters, and nearly two inches in a transverse direction, and from its surface several irregular nodules projected. It weighed three ounces and one drachm. Its external surface was composed of uric acid. A tube was passed into the wound, and left for about forty hours, the urine coming away freely through it.

Aug. 10th.—The report continues as follows: Pulse 84; the patient going on well. From this time he progressed uninterruptedly (with the exception of a slight attack of diarrhœa, which was easily checked), taking his food well, sleeping well, and suffering no pain whatever.

On the 22nd the urine ceased to flow through the wound, and came entirely by the penis.

The wound granulated healthily, and, occasionally being touched with nitrate of silver, was almost entirely healed when he left the hospital on the 11th of September.

It will be seen by a reference to this case that I performed the operation by Dupuytren's method. This plan, as is well known, is the original "bilateral" operation by means of the "lithotome caché," a most beautiful and ingenious instrument devised expressly for it. Civiale modified this operation by making the external cut perpendicular in the mesial line, but retaining the double section of the prostate; and Sir W. Fergusson has still further modified it by confining the section in ordinary cases to the left lateral lobe of the prostate.

The principal of all these three operations appears to be the same—namely, to reach the neck of the bladder through the mesial line, where it is nearest to the surface. The difference in the details is, however, great, and I think most important.

So far as *external* incision is concerned, Sir W. Fergusson adopts Dupuytren's method—the crescentic transverse; thus getting wide space, enabling the rectum to be fairly separated from the bulb and well depressed, and cutting below or rather behind the arteries of the perineum. In all these respects I think this incision is preferable to the perpendicular external cut of Civiale and Allarton.

In the internal incision—that through the prostate and neck of the bladder—Civiale nearly follows Dupuytren, making the cut equally into both lateral lobes by means of a lithotome caché; whilst Sir William confines his cut, except in certain cases, to the left lateral lobe, and makes it with the scalpel.

To my mind the double cut appears the preferable method, as by it an equal extent of incision can be made in the prostate with less danger of passing beyond its limits. Suppose, for the sake of argument, that to extract a calculus it is desirable to make a cut eight lines long into the prostate. If one lobe only is incised, the cut must go to the full extent in it. If both lobes are cut, only four lines need be divided in each of them; and so proportionately to any extent. As the whole under-surface of the prostate is exposed by the transverse external cut, it is as easy to divide both lobes as one. This may be done with the scalpel, and, in such dexterous hands as those of Sir William Fergusson, with perfect safety; but for a less expert master of our art I think the lithotome caché a safer instrument, as by it the extent of incision can, without possibility of error, be regulated to a hair's breadth.

There is one practical point in all these mesial operations of lithotomy—whether Allarton's, Civiale's, or Dupuytren's—which I consider of some little importance. It is the use of the rectangular in preference to the ordinary curved staff. I have now used it several times in Allarton's and Civiale's, and look upon it as possessing three very decided advantages over the curved staff. The first is, that its angle can be placed directly in the membranous part of the urethra, and held there until the knife enters its groove. Thus it becomes an unerring guide to the exact part of the urinary canal that we wish to open. The second advantage is, that it carries the urethra away from, instead of, as the curved staff does, down against the rectum. And the third is, that from the angle onwards the course of the groove is straight and direct, so that the beak of the lithotome or the point of the scalpel is carried on in a straight instead of a curved direction.

Cavendish-place, Jan. 1868.

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**The Nursing of Children with the Milk of Animals in France.**—Dr. Dereins has sent us a pamphlet in which he shows that the custom of French mothers to send their children into the country to hired nurses is most destructive of life. He proposes to erect in a healthy country district, near Paris, an "oasis for infants," where the latter shall be carefully attended to, and fed by the milk of cows and other animals kept exclusively for the purpose. The author maintains that the plan can be carried out in two ways, either by public charitable subscription or by shares. It remains to be seen how his countrymen will respond to his benevolent views. The mortality of infants confided to country nurses has been shown to be frightful.

**The** New York Legislature is said to have granted a charter to a "Homœopathic Mutual Life Insurance Company," whose peculiarity is that the lives of those who adopt what is designated as "the homœopathic treatment of diseases" are to be insured at "judiciously reduced rates" in comparison with the benighted disbelievers in the *similia similibus curantur* principle.

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Prœmium.

## UNIVERSITY COLLEGE HOSPITAL.

### ENORMOUS OSTEO-SARCOMA OF THE LOWER JAW; REMOVAL; DEATH.

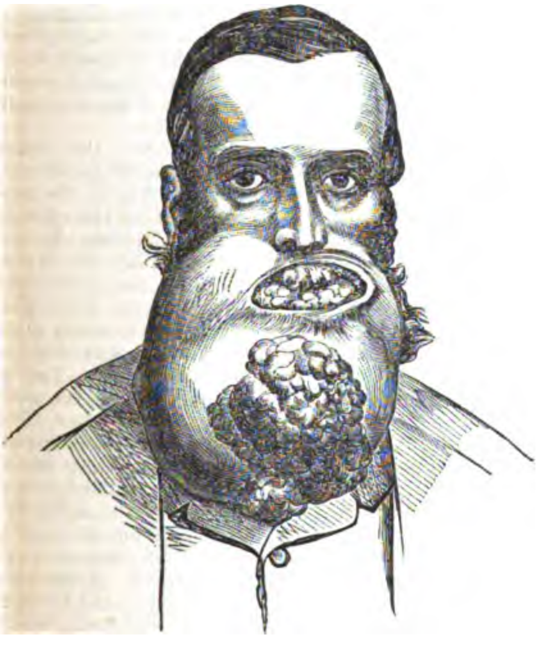
(Under the care of Mr. Christopher Heath.)

The following is a detailed account of the exceedingly rare and interesting case to which we referred in The Lancet for February.

W. T——, aged thirty-two, was admitted Nov. 13th, 1867, with an enormous tumour of the lower jaw. About eleven years ago he had a severe pain in the right jaw resembling toothache and after some little time he perceived a small hard swelling about the size of a nut just below the right canine tooth, which was not decayed, nor were any of the teeth in its immediate vicinity diseased. This swelling continued about the same size for five or six years during the latter part of which time it was entirely free from pain. Four years ago it began to enlarge, and two years afterwards he was thrown from a cart and fell on his face, when he had profuse bleeding from the gums. The tumour now grew rapidly, spreading along its anterior surface, and involving the whole of the right side of the jaw. About twelve months ago it began to involve the left side of the jaw, and has now extended up to the angle. He has been seen by various medical men at his native place, and also by one London hospital surgeon, and the question of an operation has been discussed, but nothing has been done. Two years ago, one quack burnt the inside of his mouth with acid, and another put a white ointment upon the surface of the tumour, which caused the skin to give way at the point where the present protrusion appears. About a year ago, the portion of the tumour near the right angle of the jaw rapidly increased and in a short time the skin gave way, and a quantity of offensive pus was discharged, but there was no diminution in the swelling. Latterly, owing to the difficulty in swallowing, he has been able to take little but milk and brandy, and this in small quantities at a time, so that he has become much reduced in strength. His family have all been healthy and long-lived.

On admission, the patient presents an extraordinary appearance, the mouth and all the lower parts of the face being occupied by an enormous tumour. The measurements of this are as follows:—From the lobule of one ear round the chin to the lobule of the other ear, 19½ inches; from the border of the lower lip across the chin to the pomum Adami, 13 inches; from the angle of the jaw across to the same point on the opposite side

14 inches. When the man is sitting, the tumour rests upon the top of the sternum; but it moves freely when he opens and closes the mouth. Between the lips, of which the lower is much stretched, so that the circumference of the mouth measures 9½ inches, there is a red granulating mass of disease, which comes in contact with the upper lip; but when the mouth is opened, a space intervenes through which a second mass, covered with the mucous membrane of the floor of the mouth, can be seen almost in contact with the roof of the cavity, and completely hiding the tongue. Between these two masses some of the teeth can be felt and seen. The illustration, taken from a photograph, shows the patient with his mouth shut. From beneath the cheek on the right side a foul, yellowish discharge constantly exudes. An inch below the lower lip is a large red fungus mass, covered with healthy granulations; this extends to the lower border of the tumour, and the skin is adherent around it. On the right side, just below the angle of the jaw there is another smaller fungous projection; but the skin on the left side is perfectly healthy, though much stretched. The right ramus of the jaw cannot be defined, though the angle can be indistinctly perceived. The articulation, however, is not involved. The tumour, though overlying the neck, in no degree involves its tissues, and there are no enlarged glands either below the jaw or in the neck. On the left side the whole of the ramus and angle can be clearly made out, the disease stopping short of the latter point.



From the time of his admission the patient was well fed with strong beef-tea, milk, eggs, and brandy; and considerably improved in appearance. Mr. Heath's colleagues agreeing with him as to the advisability of an operation, this was undertaken on the 20th of November, 1867. The patient being seated in a chair, Mr. Clover administered chloroform at first with the ordinary mask, and during the operation with a smaller one, enclosing only the nose. As soon as the patient became partially unconscious he was carefully secured in the chair with bandages, and his head was held firmly against the breast of an assistant. Perfect anæsthesia having been induced Mr. Heath, standing on the right hand of the patient, divided the lower lip in the median line, and carried the incision round the right side of the fungus protrusion to the lower extremity of the tumour. The skin was then rapidly dissected back with the assistance of Mr. Marshall, who took up the vessels of the flap. Returning to the middle line, Mr. Heath made a second incision on the left side of the fungus, meeting the former one above and below, and dissected back the skin off the tumour as far as the jaw. The bone being isolated with the assistance of Mr. Erichsen, the second molar tooth was drawn, and a narrow saw applied at that point; but before complete division was effected the weight of the tumour caused it to break away. As had been prearranged, Sir H. Thompson then grasped the tongue, which was now seen for the first time, and transfixed the tip with a stout needle and ligature, by which it was held until the operation was concluded. On dividing the mucous membrane beneath the tongue, a large lobulated mass came into view imbedded among the sublingual muscles; and this being dragged forward, the muscles were divided close to the tumour, and one or two bleeding vessels were promptly secured by Mr. B. Hill. The tumour being then turned over to the right side, Mr. Heath carried the knife upwards, so as to clear the coronoid process, which was healthy; but this appeared to be driven forward against the malar bone, and tightly jammed, so that forcible traction made on the tumour failed to clear it. Grasping the process itself with the lion forceps, Mr. Heath succeeded, however, in wrenching it out, when the condyle of the jaw, also healthy, immediately came forward without any dissection. A little dissection round the posterior margin of the tumour now completely disconnected it, and it was removed. About half a dozen bleeding vessels were now tied, none of them of large size, the two facial arteries having been preserved uncut. Finding the bone on the left side where the tumour had broken away rough and irregular, Mr. Heath sawed it cleanly through, close in front of the wisdom tooth.

There was now an enormous gap; the fauces, tongue, and front of the larynx being fully exposed, and the flap of skin on each side being pendulous and superabundant. The right was somewhat ragged, owing to the perforation which had taken place, and also owing to its being so adherent to the tumour that it had been perforated at one or two points; Mr. Heath therefore removed a portion of it, adapting the opposite flap to it. The lip was then brought together with three harelip pins and a twisted suture, and the remainder of the incision was held together with four silver sutures, placed some distance apart so as to allow discharge to escape. The thread holding the tongue was next secured to the harelip pins, so as to bring the apex of it close to the lip; and some lint was placed in the large cavity, and a bandage externally, so as to check oozing and maintain the shape of the part. The patient was then carried to bed. Not more than three ounces of blood were lost.

Half an hour after the operation the patient had some brandy by the mouth, and one-third of a grain of morphia was injected beneath the skin. He dozed during the afternoon, but was well supplied with beef-tea and brandy both by the mouth and per rectum. He had a second dose of morphia at night, and got some sleep; being warm and comfortable, and with a fair pulse.

On the two following days the patient's condition was as comfortable as could have been hoped for; he took plenty of nourishment and stimulants by the mouth, and also had nutrient enemata.

On the evening of the third day his breathing and pulse became more rapid, and he had a slight rigor. Mr. Heath now removed the ligature holding the tongue, which was giving him some inconvenience, and ordered him quinine in ten-grain doses.

On the 23rd his condition was more satisfactory again. The pledgets of lint in the chin were removed, and the wound well washed out with Condy's fluid. He passed a comfortable day and on Sunday (fifth day) he was apparently gaining ground, and was well enough to write his want of some stout upon a slate, and took plenty of nourishment. In the evening, however, he suddenly became worse, the pulse failing and the skin becoming cold; and notwithstanding the most solicitous attention on the part of the house-surgeon, Mr. Shoppee, he died early on Monday morning (sixth day).

At a post-mortem examination, all the viscera were found healthy, and there was no evidence of pyæmia. The wound had so contracted that the outline of the face was quite restored. The skin at one point was a little discolored, as by a bruise.

The tumour weighed 4 lb. 6 oz., and was a good example of fibro-cellular growth, springing up between and expanding the plates of the lower jaw. The disease extended from the juntion of the body with the ramus of the left side to half way up the ramus of the right side. The right condyle was perfectly healthy, and the coronoid process had been broken off in the operation. Mr. Heath showed the preparation at the Pathological Society on the 3rd inst., and a wax model of it in the recent state has been placed in the museum of University College.

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## KING'S COLLEGE HOSPITAL.

### LARGE IVORY TUMOUR OF THE UPPER JAW; EXCISION; DEATH.

(Under the care of Sir Wm. Fergusson.)

We briefly referred, in The Lancet for February, to the following case, which is of so rare and interesting a character that a detailed account of it deserves to be recorded. Mr. H. Royes Bell, surgical registrar, has kindly furnished us with the notes. The patient's case was taken by Mr. R. Caldecott, dresser.

G. H——, aged twenty-one, a healthy-looking young laborer from the neighborhood of Ipswich, was admitted into the hospital in consequence of a large tumour which occupied the superior maxillary region on the left side. This has been present for the last twelve years, and gradually increased for six or seven; but since then it has remained about the same. Two years ago a quack burnt a hole in the tumour with caustic at the inner part. There is a large tumour on the left side of the face, extending from the lower margin of the left orbit to a line an inch above the mouth, rounding off from the outer margin of the orbit to the left ala of the nose. Internally it encroaches on the nose, displacing it a little to the right side; the left ala is flattened in the columna, and that nostril is blocked by the tumour, which projects into it, and may be seen as a rounded mass. The left nasal bone is pushed in front of the tumour. The right nostril is quite free. The floor of the orbit is involved, the eyeball being displaced upwards, forwards, and a good deal outwards. This causes a good deal of deformity. The lachrymal caruncle is two inches and a half from the middle line of the nose; the eye cannot be perfectly closed, as there is a slight ectropion in consequence of the lower eyelid being attached to the tumour. There is no overflow of tears. The movements of the eyeball are nearly perfect, and the sight is useful enough, although not so good as in the other eye. Below, the tumour extends to the alveolar ridge, and can be felt in the mouth above the gums. There is no displacement of the palate, and the tumour cannot be seen in the pharynx. The surface of the tumour is hard and smooth, and, from its appearance and history, judged to be an osseous one, which diagnosis is borne out by the appearance of some rough, black-looking bone which occupies the hole made by the caustic. Some mucus dribbles through this aperture. The tumour is painless, and the man's genaral health appears to be excellent.

*Operation.*—On November 30th, the patient having been placed thoroughly under the influence of chloroform, administered on lint in the usual way, Sir William began by cutting the upper lip exactly in the median line; the incision was then continued upwards along the left side of the nose as far as the margin of the hole made by the caustic, and again from the upper margin of this aperture to a point a little below and external to the orbit. Here a perpendicular cut was made to allow of the free application of the saw. The flap thus formed having been dissected back, the whole of the surface of the tumour was exposed. The eyeball was then carefully dissected from the orbit. The saw was then applied to the external and internal attachments of the tumour, and horizontally along the fossa above the teeth. The tumour was then forcibly grasped by a large pair of lion forceps, which slipped continually in consequence of the extreme hardness of the tumour. As the mass could not be moved by the forceps and elevator, a further application of the saw was made, especially at the inner and upper angle of the tumour. It was then removed without difficulty, bringing away with it the floor of the orbit. A few portions of the growth still attached to the interior of the cavity were then removed, and the bleeding from one or two vessels was readily stopped by the application of the actual cautery. The incision in the lip was then brought accurately together by hare-lip pins, and the rest of it by sutures. A piece of sponge was then placed in the cavity left after the removal of the tumour, so that the eye, which had hitherto been supported by an assistant, was prevented from falling. The patient, who had not lost more blood then generally takes place in an ordinary operation on tumours of the upper jaw, was then removed to the ward.

Dec. 1st.—Patient is doing remarkably well. Has slept well during the night, and takes his food without the least difficulty. Has not suffered any bad effects from the chloroform.

2nd.—Patient expresses himself as feeling very comfortable. Pulse strong. The upper eyelid is a good deal swollen, and the conjunctiva raised by fluid beneath. Sir William punctured the conjunctiva in several places, and a good deal of serum escaped. The tongue coated slightly, but moist. Pulse 110, full and strong. Wound looks well.

3rd.—One A.M.: The house-surgeon again punctured the conjunctiva in several places. The swelling has gone down since the afternoon.—Ten A.M.: Mr. Wilcox, the house-surgeon, was called to him between eight and nine A.M., and found him very faint and restless. He was ordered to take as much brandy as he could swallow. Ether and ammonia were also given; but he gradually sank. His lips became white, and his pulse imperceptible. He sank gradually, and died at a quarter past ten A.M., remaining conscious to the last. The only complaint made by the patient was that on the evening of the 2nd his heart palpitated and caused a sense of uneasiness; and again when the house-surgeon was called, when he had a feeling of faintness, and a sensation as if he were dying.

The tumour weighed ten ounces and a half; it is irregular in shape, and about the size of a large fist. It seems to be composed of two parts, a rough cancellated structure, and a white ivory mass The white ivory mass consists of two parts, of unequal size; the upper part is much the larger of the two, the lower being a process of the upper extending into the free space behind the nares. At the points where the tumour is free the margins are rounded like marbles. The large mass which composes the inner part of the tumour extends horizontally outwards, giving off the outer descending portion from its outer angle. Between this process and the main portion is the *cancellated* tissue, which likewise runs at the back of the tumour, and also along its upper portion, obliterating all trace of the upper proper floor of the orbit; this seems to be the portion by which the tumour was so extensively attached. The ivory portion is movable on the cancellated portion slightly.

*Report by* Dr. Trimen, curator of museum.—The ivory mass is the true tumour, and shows a tendency to separate from the supporting bone, as in Mr. Hilton's case ("Guy's Hospital Reports," vol. i., pp. 498–506). At the junction of the ivory mass with the cancellated bone tissue is a thin layer of soft gelatinous substance, which separates whilst it unites them; so lightly, indeed, is the connexion maintained, that, in sawing the growth into halves, the smaller ivory portion easily separated from the bony portion, and it required the greatest care to prevent a similar separation of the remaining larger ivory portion. This semi-fluid connecting tissue was seen, under the microscope, to have the characters of actively-growing cartilage, being crowded with nuclei. There was also commencing ossification in it.

In his remarks, Sir William called attention to the difficulty experienced in the removal of so large a tumour, and one with such extensive attachments, and the necessity of going about the proceeding with great deliberation and forethought. No surgical treatment had been attempted in this case, which had been kept under observation for a few weeks for the purpose of studying the tumour, and also that the patient might get accustomed to the hospital. The patient seemed to have improved since his admission. The steps of the proceeding, which are given elsewhere, were then gone through, and attention called to the effective way in which these incisions allowed the tumour to be exposed, and the slight disfigurement which followed the operation. The instruments used were then shown: the saw with a bowed handle above the blade, so that the hand is above, and does not interfere with the blade sawing deeply into the bone; the lion forceps were especially dwelt upon, as without them these formidable operations about the jaw could not be so readily or effectively performed; these strong forceps were invented by the operator, many years ago, when he began to operate on tumours of the jaws, and have been found most invaluable. Formerly, in many instances the tumours were said to be in the antrum when in fact they grew from the walls, and compressed the antrum. In the present instance the tumour, as well as implicating the wall of the antrum, affected also the floor of the orbit extensively, displacing the eye considerably. Twenty-five years ago the incisions would have involved the roof of the mouth, all the teeth, and half the palate being removed; by these means the patient's chance of recovery would have been rendered less, and the operation more severe. In this case the teeth, which were very good, were left, and the palate not interfered with; the operation is more difficult, as it is not easy to saw horizontally, but the gain is great. The eye in this case was carefully dissected from the orbit, and entrusted to an assistant.

*Post-mortem examination.*—There was a large cavity in the left side of the cheek, lately occupied by the tumour; there was no clot in it. The upper incision had begun to unite by lymph. The space extended backwards. No portion of the tumour remained. There was a projection about the size of a hazel nut from the sphenoid, near the optic foramen. The tumour implicated the optic foramen, and extended downwards into the fossa of the skull, on the left side, by the sphenoidal fissure. The optic, third, and fourth nerves were to be seen going through the enlarged bone. The brain was quite normal at this spot as elsewhere, and did not seem to have been pressed upon. There was a slight clot non-adherent, and not filling up the left internal jugular vein at the lateral sinus. The posterior lobes of both the lungs were congested, broke down under the finger, and sank in water. He presented during life no abnormal chest symptoms. There was a softish clot in the pulmonary artery. The heart and other organs were remarkably healthy.

## GUY'S HOSPITAL.

### A SUCCESSFUL CASE OF OVARIOTOMY,

### IN WHICH THE PEDICLE WAS LIGATURED AND DROPPED BACK INTO THE PELVIS WITH THE LIGATURES CUT OFF CLOSE; AND IN WHICH THE LIGATURES WERE SUBSEQUENTLY DISCHARGED THROUGH AN ARTIFICIAL ANUS AT THE LOWER PART OF THE ABDOMINAL WOUND.

(Under the care of Mr. **Thomas Bryant**.)

The following case well illustrates one of the dangers to which the practice of returning into the abdomen the pedicle of an ovarian tumour with its ligatures cut off close is necessarily exposed, although it happily turned out well in the end. It forms the tenth successful case out of the last twelve which Mr. Bryant has operated upon at Guy's Hospital in which this practice was adopted, and deserves the careful study of all who advocate the plan. We give the case in detail from the report by Mr. J. W. Morrison.

Emma S——, a single woman, aged thirty-six, who was sent up to Mr. Bryant from Eastbourne by Dr. Whitefield on the 4th of September, 1867, and was admitted into Guy's Hospital. She had always enjoyed good health, although her general appearance was somewhat pale. She first observed, in May, 1866, an enlargement of the abdomen, this enlargement being appparently on the right side, Since that time the increase has been steady. There was occasional pain in the belly of a sharp character; but this never lasted for any time. The catamenia had been regular till five months before her admission, when they ceased.

On admission, the abdomen was much distended, and was clearly filled with fluid. It was uniformly dull on percussion when the patient was recumbent, except in the loins, where it was resonant. Fluctuation was also readily detected. The abdomen measured forty-two inches in circumference. The uterus was declared to be normal and free. The cyst was thought to be somewhat thin, and some ascitic fluid was believed to be present. Pulse,112, and weak; tongue clean; bowels regular. Her legs have swelled a little during the last few weeks.

On the 21st of September this patient was tapped to make the diagnosis sure; for it was uncertain how much of the fluid was ascitic, and nearly four gallons of a very light-colored fluid, slightly sticky, containing cholesterine, was drawn off, a large, solid, ovarian mass remaining. No bad symptom followed this practice; but by the 3rd of October the abdomen was nearly its former size.

On the 4th ovariotomy was consequently performed. Mr. Bryant performed this operation, as usual, in a private ward, with only such visitors present as were free from all dissecting room, post-mortem room, or other evil influence. He made a small incision about six inches long, and evacuated about nine quarts of ascitic fluid; a semisolid ovarian cyst then came into view, which was tapped, and about two quarts of a white highly gelatinous fluid was drawn off. The tumour was then removed, and its pedicle, which proved to be on the left side of the pelvis, was secured in two portions with a strong whipcord, the ends of the ligatures being cut off close, and the whole dropped into the abdomen; the wound was then closed. During these steps of the operation the bowels never came into view, nor was there any adhesion which required treatment. The operation was a very simple one, and the case promised a favorable result. The wound was closed with smooth silk sutures; and opium suppository was given, and the patient placed in bed. A little chloroform sickness followed the operation but disappeared on the second day, and everything went on well.

On Oct. 8th (the fourth day) the wound had healed, and the sutures consequently were removed, some pieces of strapping being put on to keep the parts well together.

On the evening of the eighth day the strapping, however, became loose, from the oozing of some ascitic fluid from the abdominal cavity, and from a slight gaping of the wound; and during the night a rush of fluid took place, which caused some alarm. No evil result, however, followed. The patient's bowels acted naturally.

On the 11th, for the first time, and on the 12th, some diarrhœa set in, which was checked by a dose of chalk mixture. The patient then seemed very comfortable; she was free from all pain, or abdominal tenderness. Her pulse was good, tongue clean, aspect healthy. She took food also with tolerable appetite.

15th.—Diarrhœa set in, and on the 17th a fluctuating swelling appeared at the lower extremity of the abdominal incision. This swelling was also clearly tympanitic. The diarrhœa was again checked by a dose of chalk mixture, but the fluctuating swelling opened naturally on the 18th, and liquid fæces made their escape. No signs of other mischief existed. The nurse was directed to examine the fæces which passed from the artificial anus with great care, to see if any ligature should come away. In four days this artificial anus completely closed, and everything appeared to be going on well for one week, when diarrhœa again set in, and the abscess reopened, and discharged with fæces on the 29th the double loop of ligature by which the pedicle had been secured. In three days the wound had again healed, and in three weeks the patient had left the hospital perfectly well.

It was certain in this case that the loops of ligature by which the pedicle had been secured had subsequently ulcerated into the bowel, and had made their way through the abdominal wound to the external parts. It was also certain that during the operation no intestine had been touched, or even seen, and no adhesion had to be treated in any way; as a consequence, there is no other explanation for the discharge of the ligature than the one which has been just given.

## MIDDLESEX HOSPITAL.

### OUT-PATIENT CANCER DEPARTMENT.

(Under the care of Mr. **Nunn**.)

The diagnosis in some forms of ulcer found on the lips and tongue and genitals is occasionally rendered somewhat difficult by an outward resemblance between the cancerous and the syphilitic ulceration and induration. The following cases have been selected as illustrating the above proposition:—

Solomon U——, aged fifty-two, December 20th, 1866. "Has an ulcerated gaping notch in the *upper* lip to the left of the median line. He has twice undergone excision: on the first occasion by a private practitioner; on the second, by one of the most distinguished hospital surgeons in London; and he attended during nine months at a cancer hospital. The ulceration has extended to the alveolar border of the upper jaw behind the sore on the lip: the ulceration of the bone, in fact, corresponds to the ulceration of the lip." The history of the case is syphilitic; the appearance of the sore is cancerous. Thirteen years previously the patient was bitten on the lip, at the part now affected, by a loose woman. The bite was followed by a sore, which remained open during three years; it then healed, continuing sound for five years, at the end of which period the sore broke out afresh, the patient alleges from the irritation of a pipe; it has remained unhealed ever since, having been twice operated on, as just stated.

The patient was put by Mr. Nunn on an anti-syphilitic treatment, consisting chiefly of biniodide of mercury and iodide of potassium; the result being a considerable improvement in the appearance of the sore. The patient ceased to attend after a few weeks, but not before Mr. Nunn felt thoroughly convinced of the syphilitic nature of the ulceration. Mr. Nunn expresses his belief that the woman who inflicted the wound on the lip of the patient with her teeth, was suffering from constitutional syphilis; that a modified syphilitic sore was the result of the infection of the wound, and that, by subsequent modification of the poison in the patient's system and latency a lupoid ulcer was developed of the same character as lupus, the consequence of hereditary syphilitic taint; although the relationship of lupus to hereditary syphilis is unhesitatingly denied by some writers. In the above case, the long history, and the situation of the sore on the *upper* lip, favor the view that the sore was not cancerous.

Charles S——, aged fifty-two a smith, was sent to the hospital by Dr. Slight, of Brewer-street, Regent-street, for Mr. Nunn's opinion as to a sore on the *lower* lip to the right side of the median line.—Feb. 21st, 1867: "The sore is about the size of a threepenny-piece, and has hardened edges; a gland below the jaw is enlarged; the patient is quite free from any kind of sore on his genital organs. The sore has existed during *one week*." The probability of every source of contagion was examined. It appeared that the patient was in the custom of taking up from the work-bench any tobacco-pipe that might come to hand. The straightforwardness and candor of the man, in his replies to searching questions, left little doubt of a tobacco-pipe being the medium of his infection with syphilitic poison. The *short* history of the sore in this case eliminated the question of cancer in calculating its origin. In the course of a few weeks constitutional syphilis declared itself; and a note of the case, May 9th, states that an attack of iritis was subsiding at that date.

— M——, admitted Jan. 25th, 1866, with sore on the *lower* lip to the right of the median line. The sore had an indurated base about the same size as that in the case above recorded. There was an enlarged gland below the jaw. The patient stated that his mistress had sores on the inside of the mouth. This patient suffered shortly afterwards from constitutional syphilis. He applied to the cancer department of the hospital, under the fear that he had cancer of the lip.

Robert D——, aged seventy, admitted June 20th, 1867. "Situated just at the junction of the scrotum with the penis on the raphé is a circular sore, having a diameter of half an inch. The posterior segment of the margin is raised and rounded, very closely resembling the edge of an epitheliomatous ulcer; but the anterior segment is not raised, and is, moreover, obviously inclined to cicatrise. Enlarged glands are to be felt on either side in the groin." The possibility of venereal infection was stoutly denied. The patient stated that the sore commenced six months previously by a small pimple; that this had been "burnt" several times at an hospital, where he was told the disease under which he was laboring was cancer. Be that as it may, when he applied to Mr. Nunn the sore was covered with red precipitate ointment. Mr. Nunn decided, from the cicatrisation of the anterior segment, to treat the case as one of syphilis. Accordingly, biniodide of mercury was prescribed; and on July 11th—that is, at the end of three weeks—the sore was quite healed.

The two following cases of syphilitic ulceration of the tongue had been treated, Mr. Nunn was informed, at a special hospital for cancer during many months:—

George L——, aged thirty-six, admitted Aug. 4th, 1864. The patient applied at a general hospital in January preceding. He was directed to apply at the Cancer Hospital. He did so, and was there treated during seven months as a cancer patient. Mr. Nunn prescribed iodide of potassium, &c. The sores on the tongue were very painful and very obstinate, resisting a variety of local treatment; but it so happened that the patient was attacked smartly by erysipelas of the face in May, 1865, and from the date of recovery from that attack the tongue became manageable and healed.

John B——, admitted Jan. 12th, 1865. "Has deep syphilitic fissures along both edges of the tongue." He states that he had attended at the Cancer Hospital during eighteen months all the time believing himself to be the subject of cancer.

This case has proved remarkably obstinate; and, up to the present date, the patient comes occasionally. In December, 1865, iodoform, in one-grain doses thrice daily, was apparently of considerable service. Ultimately its therapeutic influence was doubtful. A mixture of chlorate of potash, with iodide of potassium and sesquicarbonate of ammonia, has proved on the whole to be the most effective remedy.

## ROYAL HOSPITAL FOR DISEASES OF THE CHEST, CITY ROAD.

### CASE ILLUSTRATING THE USE OF THE OPHTHALMOSCOPE IN MEDICAL DIAGNOSIS.

(Under the care of Dr. SAMSON.)

WALTER M——, aged eleven, was admitted as an out-patient on Nov. 16th, 1867. He complained of shortness of breath, pain in the chest, and severe headache. Two years before his admission, whilst at school, he complained of dulness of sight. For twelve months he has been losing flesh. He has suffered from headaches, which latterly have increased in severity, and they now give rise to crying and fretfulness, and the height of these paroxysms is described as "dreadful." The hereditary tendencies are as follows: father suffers from chronic bronchitis; mother has frequent headaches, so also have the brothers and sisters; one sister suffers from rickets and general debility. The following describes his condition: Thin; small flabby muscles; pale; head large and flattened; teeth much notched; high arch of palate; slightly deficient resonance in left apex of chest; here dry râles, and respiration harsher than in right. Ordered counter-irritation to the chest by turpentine liniment; one grain of iodide of potassium and half an ounce of infusion of bark three times a day. No improvement followed; on the contrary, the headache became frightfully intense; it occurred every afternoon at two o'clock, and was accompanied by screaming.

Considering the emaciation and the physical signs suspicious of an early stage of pulmonary tubercle, Dr. Sansom was led to fear that the violent headache might be due to incipient intracranial tubercle. To investigate this point he made an ophthalmoscopic examination. He found that the fundus of each eye was rather paler than usual; the optic entrances were of their normal color, and the vessels were small. In each eye the appearances were perfectly similar. This examination tended to negative the idea of tubercle in the meninges; for it would be probable in such case to discover hyperæmia instead of anæmia, and the perfect similarity of each would not obtain.'

The following treatment was adopted: cantharides blister behind each ear; ten grains of bromide ot potassium, afterwards increased to fifteen grains, three times a day; cod-liver oil twice a day.

The boy gradually improved, and on January 18th the note states, "He is mending very greatly, is livelier, and the pain in his head has greatly disappeared. The pulv. soda c. ferro of the hospital Pharmacopœia was added to the treatment."

# Medical Societies.

MARCH—APRIL.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

MR. SAMUEL SOLLY, F.R.S., President, in the Chair.

### ON THE CURE OF CLEFT PALATE BY OPERATION IN CHILDREN, WITH A DESCRIPTION OF AN INSTRUMENT FOR FACILITATING THE OPERATION.

BY THOS. SMITH, F.R.C.S.,

**Assistant-Surgeon to St. Bartholomew's and the Children's Hospitals.**

THE author's object in presenting this paper is to communicate to the Society a plan of operating on clefts of the palate, applicable to all who suffer from the deformity, but especially to children, to those deficient in physical courage and in the power of enduring pain. No attempt is made to improve on the principles of staphyloraphy as laid down by Sir William Fergusson, though slight and inconsiderable modifications in that gentleman's practice are advocated, as more suited to the tender age of the patients, for whom the plan in question is specially designed. The chief novelty in this proceeding is that chloroform can be employed. A painless and speedy operation can therefore be performed, and that with more precision and a greater prospect of success than when the operator is dependent upon the self-control of the patient; while, from the painless nature of the operation, the cure of cleft palate can be effected in children, to whom formerly the benefits of staphyloraphy were virtually denied. The author discusses the probable advantages of the performance of the operation in early life, though he waits for a larger experience to fix the particular age at which it is best to attempt to cure the deformity. The plan of operating recommended depends chiefly for its success on the employment of a gag, whereby the tongue is depressed, the jaws can be opened and fixed, and the orifice of the mouth enlarged. This is adjusted when the patient is under chloroform. The modifications of the ordinary operation as suited to the insensibility of the patient are described. They consist chiefly in avoiding any considerable flow of blood until the very last step in the operation has been accomplished. The author recommends for children the employment of fine fishing gut and horsehair as the best materials for suture, and describes certain modifications in the ordinary shape of the needles employed and the manner of passing the sutures, which simplify and expediate the operation. The conclusions in the paper were supported by cases. Finally, the author stated that he trusted by the lapse of time and further experience to be able to determine the age at which an operation should be done, and the effect of an early operation on articulation and vocal resonance.

Appended to the paper were the accounts of eleven cases where the operation for cleft palate had been performed in the manner recommended by the author—that is, with the aid of a gag, and under chloroform. In eight of these cases the operation was successful; three were failures. No operation had been attempted on the hard palate, though in nine of the cases the deformity involved the bony palate to a greater or less degree. The author expressed a belief that it would in many instances be unnecessary to perform any operation on the bony palate if the cure of the soft parts were effected in early life. In support of this belief he adduced three cases of operation where the soft palate only had been united, and where the hole remaining in the roof ot the mouth had gradually contracted to very small dimensions. Sufficient time had not elapsed since the operation in the author's cases to allow him to speak authoritatively on this subject. An easy method of fastening gut sutures without cutting the gut was described. Children were exhibited on whom the operation had been successfully performed, and one adult was also present, whose palate had been united by operation under chloroform. The author recommended the use of the gag and chloroform for adults as well as children in the performance of this operation. Though the effects of the operation in children on the powers of articulation had been at present highly satisfactory, the author abstained from making any definite statement on this subject, waiting rather for the lapse of time and additional experience to furnish fuller information.

The President complimented Mr. Smith on the excellence of his paper. He remarked that Mr. Smith spoke of vomiting; he would asked if it were necessary to remove the gag to allow the child to get rid of the vomited matters.

Mr. Smith explained that it was only necessary to do so that the mouth might be cleaned out.

Mr. Durham said that although he had been at work on the subject for some time, Mr. Smith had completely taken the wind out of his sails. It was still questionable what was the exact period at which the operation could be earliest performed with a hope of success. No doubt, however, childhood was the great time. In fact, the improvements made in the manufacture of artificial palates rendered the operation in advanced life unadvisable, for it was only in children that much improvement in speech and swallowing was observed. The operation should be performed on patients when below fifteen years of age, and under the influence of chloroform, although this latter somewhat retarded the operation. As a ligature, he thought gut good, but the horsehairs had a tendency to unfold themselves. To facilitate their introduction he employed a needle-holder (which he showed), and found it a useful adjunct. Hitherto he had not used Mr. Smith's gag for any operation on the palate, but had found it most useful in dealing with the tonsils.

Mr. T. Holmes stated that he had only once had an opportunity of operating in this way; that was in a boy of thirteen. He had proceeded much in the same way as Mr. Smith. He considered the gut likely to be an improvement. To facilitate the operation, it was necessary to give a good deal of chloroform, so that the patient should be completely under its influence. The vomiting after the operation was often obstinate, and constituted one of the serious drawbacks on its success. In future he considered that chloroform would probably be used, as there was no danger with it, the bleeding not being troublesome. He did not attempt to deal with the hard palate.

Mr. Startin remarked that silk, if covered with elastic collodion or gutta-percha, was quite as good as anything for ligatures.

Mr. Prescott Hewitt said that in removing the upper jaw, under chloroform, there was in one case of his, the operation being protracted, much hæmorrhage. The patient suddenly died, and it was found that the whole of the air-tubes were completely filled with blood. There were many cases now, however, which showed that the risk from hæmorrhage was not great as a rule.

Mr. Curling said the hæmorrhage was usually slight, and the blood generally passed into the stomach.

Mr. Clover said he had often given chloroform in dental cases where there was considerable hæmorrhage, and the blood always appeared to go down the throat into the stomach. The quantity and rapidity with which it was shed were, he believed, of importance. Under such circumstances he would use a nose-cap for the administration of chloroform. As a material for sutures, he would recommend a structure like the street telegraph—gutta-percha with copper core. For this he would recommend a kind of needle, which he showed.

Mr. Savory remarked on the great advance in practice this paper indicated. In Sir W Fergusson's operation, the subsequent deficiency of articulation was disappointing. He had several cases, but had never seen complete recovery of speech; hence some think an artificial palate preferable. The question was—Would we get a better result now, operating so much earlier in life? It should be remembered that the opening was more than a mere fissure. A good deal of muscular tissue, especially of the levator palati, was absent, and the most we could do was to substitute a cicatrix for this deficiency. The hard palate, he said, might be left to itself, if the soft was closed. This he had seen again and again. When the opening left was small, it was no impediment. The use of chloroform would depend on surgical opinion as to the best mode of dividing the muscles, whether it should be done from before or from behind.

In reply, Mr. Smith said that the operation could be more readily performed with than without chloroform. For ligatures, nothing stiff could be used, as they irritated the tongue, and the child pulled them out. Horsehair he thought better than gut, as it did not soften. Vomiting was fatal to the success of the operation, and it occurred independently of chloroform. Mr. Savory's remarks were peculiarly true. The worst specimen of articulation he had ever heard was in one whose palate was entire. In one or two of his cases perfect speech was secured.

## CLINICAL SOCIETY OF LONDON.

**Dr. Jenner**, Vice-President, in the Chair.

### VASCULAR ULCER OF THE CORNEA.

Mr. **Spencer Watson** related four cases of vascular ulcer of the cornea, treated by seton in the skin of the temporal region. He had now a considerable number of cases treated on this plan, and he believed that in such cases as resist the usual remedies, it is a resource of the greatest value. He had detailed notes of the thirteen cases, in all of which marked improvement in the state of the cornea followed the application of the seton. He did not bring the cases forward as novelties, because the treatment of such cases by this method had been long practised by ophthalmic surgeons, but simply to draw attention to a most valuable remedy for a most intractable and sometimes most destructive disease of the eye.

Dr. Hillier and Mr. Thomas Smith, referring to one of the cases related, were of opinion that no connexion had been yet shown to exist in children between photophobia and the existence of ascarides.

Mr. Hulke advised the use of less severe measures than the seton, such as local and constitutional sedatives, especially the repeated local use night and morning, of solution of atropine. Tonics might also be added.

Mr. Rouse preferred the use of belladonna to that of atropine, in consequence of the difficulty of obtaining a pure solution of the latter.

Mr. Watson stated that the seton was only recommended as a last resource. He did not consider it a painful or troublesome remedy.

### ACUTE RHEUMATISM.

Dr. Weber narrated two fatal cases of the above disease, in which death was preceded by excessive increase of the temperature of the body. In the first case, that of a man aged forty-five, cerebral symptoms supervened on the twelfth day of the illness, the previous progress of which had been comparatively mild, although the patient had been more than commonly restless. During the evening of the twelfth day the restlessness increased, and he passed a large quantity of pale alkaline urine. Early next morning he became delirious, and finally comatose. This condition ended fatally in five hours, during which the temperature exceeded 108° Fahr.; his breathing was accelerated and stertorous; his pulse over 130 and hard, and the pupils without reaction. In the second case, the fatal symptoms set in and progressed in the same way, although death occurred somewhat more rapidly. Ten minutes after death the temperature in the axilla was 107·8°, and in the rectum 109·8°. In both cases, the character of the first sound of the heart, as heard at the apex, was altered. The principal pathological changes were, hyperæmia of the brain and its membranes, imperfect coagulation of the blood, recent fibrous deposit on and around the mitral valve, and hæmorrhages beneath the serous membranes. Dr. Weber expressed the opinion that in these cases the cerebral functions, after a short stage of excitement, became paralysed, and that the phenomena of intense pyrexia which present themselves are not the cause, but the effect, of this paralysis. In support of this view, he compared them with others recorded by Wünderlich, in which there was excessive rise of temperature before death in tetanus, and other fatal neuroses, and pointed out the striking resemblance of the symptoms to those of sun-stroke. He further referred to the remarkable experiment of Tscheschechin, who found that after section of the pons at its junction with the medulla oblongata, the contractions of the heart and the respiration were accelerated, and the temperature raised. In his concluding remarks on treatment, Dr. Weber suggested, that all cases of acute rheumatism, in which there was more than usual restlessness, should be watched with special care. If the premonitory symptoms of danger were early recognised, particularly increase of temperature, a good result might still be hoped for from the use of the cold affusion, or of other means for lowering the temperature of the body, combined, perhaps, with the use of quinine in large doses.

Dr. Sanderson related a case which had recently come under his notice which he had no doubt was of the same nature as those related by Dr. Weber although it differed in some important respects. The patient, a female aged forty-five, became drowsy; two days later her drowsiness subsided into coma, which, in a few hours, ended in death. During her final period the temperature rose above 109°, the skin pungent, the respiration accelerated and stertorous, and the pupils insensible. After death, the blood was found entirely fluid. Dr. Sanderson concurred generally in the explanation of the symptoms offered by Dr. Weber.

Dr. Murchison, after referring to two cases, agreed in regarding the rise of temperature as the most important feature with reference to the pathology of these cases. He was not prepared to deny that that part of the nervous system which regulates the heat of the body is interfered with, but it appeared to him more reasonable to attribute this interference to the existence in the circulating blood of poisonous products of abnormally increased destructive metamorphosis of tissue than to suppose that the disorder was primarily neurotic. The state of the patients' before death, and their mode of death, seemed to him similar to those often observed in malignant typhus, and when the typhoid state supervenes in other diseases, and he believed that the pathology of the two cases was the same.

Dr. Anstie drew attention to the fact that death occasionally occurs in cases of delirium tremens in a very similar manner to that now under consideration; and referred to a case of the kind in which the axillary temperature before death was 108°.

Dr. Stewart related several striking cases in which rapid prostration with stupor or delirium had occurred unexpectedly in the course of mild attacks of acute rheumatism, terminating fatally in a few hours. In the last of these the temperature shortly before death was 100·6°. He had no doubt that the other cases were of the same kind. In all, the blood was found perfectly fluid after death. He had further generally noticed that the cases which had terminated in this way were distinguished by suddenness of invasion, profuse perspiration, and abundant miliary vesicles.

Dr. Marcet pointed out that, whatever view might be entertained as to the remote origin of increase of the temperature, it could only be regarded or understood as an expression of increased oxidation or other chemical action, and of impaired molecular life. On this ground a refrigerant mode of treatment was likely to be too depressing.

Dr. Weber, in his reply, gave his reasons for believing that the cold affusion is by no means so depressing as is commonly believed.

### FEMORAL ANEURISM.

Mr. Cooper Forster brought under the notice of the Society a case of femoral aneurism, the sac of which was ruptured. The artery was tied above and below the seat of the aneurism, and the patient recovered. Mr. Forster remarked on the failure of pressure in the treatment of the aneurism, which he attributed to the low diet to which the patient had been subjected for three weeks prior to any treatment. He had long been convinced that complete stoppage of the passage of blood through the vessel was the most desirable method, and most sure of success. After referring to the circumstances under which the rupture occurred, Mr. Forster stated that he considered that the operation of cutting into the sac, and tying both ends of the vessel, offered the best chance of rapid recovery. Whether the artery involved—viz., the femoral—justified a departure from the plan recommended in a corresponding condition of the popliteal, was the point to which he particularly drew the attention of the Society; for his own part, he believed it made exactly the difference in treatment, and for various reasons he concluded that the practice of amputation, which has been adopted in cases of ruptured popliteal aneurism, should not be used in the case of ruptured femoral aneurism.

In reply to Mr. Thomas Smith and Mr. Maunder, Mr. Forster stated that the symptoms of rupture of the aneurism were unmistakable, and that the blood escaping from the lower end of the vessel was of a bright arterial color.

Dr. Greenhow exhibited specimens of urine of a patient whose case will be communicated at a future meeting.

A committee was appointed to co-operate with him in the investigation of it.

## PATHOLOGICAL SOCIETY OF LONDON.

MR. SIMON, F.R.S., President in the Chair.

A REPORT by the Morbid Growth Committee on the Tumour exhibited by Mr. Spencer Watson was read by Mr. Hulke. It stated that the tumour appeared to originate in ossification of the deeper layers of the periosteum.

Dr. Peacock then exhibited an Aneurism of the Aorta opening into the right ventricle. The patient, a man aged twenty-five, had suffered from rheumatism, and appeared to be laboring under disease of the aortic valves. When admitted, there was some swelling of the face and extremities. After death, the aneurism was found to be connected with the aorta, at the junction of the right and left aortic valves. It did not rupture into the pericardium, although that was thinned. The pulmonary valves were nearly gone, and the opening, which had been formed not long before death, was close to the orifice of the pulmonary artery.

Dr. Anstie showed a specimen of Ulcerative Endocarditis, occurring in a man aged thirty, who came to consult him at the Westminster Hospital, complaining of pain in the chest. He had been a soldier, and was of a sallow complexion. He had no symptoms of rheumatism but his breath was short, his cheeks slightly flushed, and he had symptoms of commencing pneumonia on the right side, and a loud bruit at the base of the heart. He was admitted as an in-patient under Dr. Bastian, and died in nine days. In the morning he was cheerful and improving; at night he was morose in the extreme: became comatose, and sank in a few hours. There was no trace of embolism in the brain, but the left side of the heart was enlarged. There were granulations on the aortic valves, and still more on the mitral, whilst an abscess in the inner wall of the ventricle opened close to the origin of the aorta. The spleen was enlarged.

Dr. Mackenzie brought forward a very large Laryngeal Polypus, removed during life from an old lady who had completely lost her voice. It was removed at one operation, and was most likely attached to the posterior part of the right vocal cord. He also showed a specimen of Cancer of the Epiglottis. There were also in this patient two large cystic swellings on either side of the neck. Specimen referred to the committee.

Dr. Church exhibited—

1. Two Cystic Kidneys, removed from a woman aged forty-one. She was brought into St. Bartholomew's Hospital half comatose. She had been hemiplegic. The vessels in the brain were atheromatous, and there were traces of old clots.

2. Diseased Aortic Valves from a man aged thirty, who came in complaining of pain in his limbs and left side. He died in the water-closet. The valves were found to be almost completely destroyed. A clot was attached to a remnant of one of them, and was also connected with a long clot in the aorta.

3. A similar heart, with a fibrinous clot in pulmonary artery. In answer to a query by Dr. Wilson Fox, Dr. Church said he believed this to have been formed during life, because it was tough and firmly adherent to the valves, and there was some recent clot also attached. Referred to Drs. W. Fox and Peacock.

4. A heart from an adult, weighing 3 oz. 1 dr. The patient, aged thirty-six, died from stricture of the pylorus. The body was not weighed.

Dr. Peacock remarked that it was the lightest on record.

5. Dr. Church then proceeded to show a mass of enlarged Bronchial and Mediastinal Glands, taken for a tumour, supposed to be aneurismal. The patient died after expectorating a good deal of blood, which was found to come from ulceration of the lung.

Dr. Moxon showed, for Dr. Clifford Allbutt, of Leeds, two Tumours of the Pons Varolii. These, which are extremely rare, were one a glioma, and the other villous in its structure. Also Diseased Aorta the result of friction. A column-like rod extended from the corpus Arantii into the aorta, and ended in a hard point. An erosion of the wall of the vessel was observed at its extremity, probably caused by the motion of the valves.

Mr. W. J. Smith showed some hairs, short and clubbed, removed from patients suffering from tinea decalvans. Sporules of an undetermined fungus were to be seen at their free, brush-like ends. These were not found in all the hairs.

Mr, H. Arnett showed an Aneurismal Dilatation of the Left Ventricle of the Heart, removed from the subject the day before. It had been taken by some for an aneurism. During life there had been a marked cardiac thrill. A large pouch nearly filled with old fibrin, rising at the back of the heart, nearly encircled the organ.

## MEDICAL SOCIETY OF LONDON.

Mr. HENRY SMITH, President.

Dr. GREENHALGH showed and explained an ingenious pelvimeter, by which the pelvis might be measured more accurately than by any other instrument of the kind.

The President exhibited the Upper End of the Femur, which he had removed nine weeks previously from a little boy who had been suffering for nearly a year from disease of the hip-joint. On performing the operation the head of the femur was found dislocated on the posterior lip of the actabulum, and this cavity was filled up with a fibrous deposit. The head of the bone was deprived of cartilage over half of its extent. The patient was now progressing favorably.

The President also showed the parts concerned in a bony anchylosis of the elbow-joint, after severe injury. The operation was undertaken to remedy deformity, and a wedge of bone was removed.

Dr. Sansom then read a paper "On Zymosis, with especial reference to Cholera." The author commenced by giving an outline of the theory of zymosis. In tracing the origin of infecting particles we may, he said, divide them into two classes, —first, those arising from the animal world, such as variola, vaccinia, pyæmia; and, secondly, those arising from the vegetable world, as favus, thrush, and, if we are to believe a large mass of scientific evidence, diphtheria, ague, &c. But whether animal or vegetable, it cannot be determined with accuracy, whether the materies morbi is at the period of infection the one or the other. It is best, under such circumstances, to call it "germinal matter."

Dr. Sansom then related a series of cases which had occurred in his practice, all of which were united by close relations of time, place, and circumstances, and in one of which the "oidium albicans" was discovered as a prime factor in the disease. The author then discussed the operation of disinfectants. He divided them into three classes: 1st. Those which alter the chemical constitution of the "materies morbi," such as chlorine and iodine. 2nd. Those which act partly chemically and partly vitally, such as the sulphites. 3rd. Those which act only on organised material, arresting vitality, such as carbolic acid. The treatment of zymotic disease by the internal administration of the sulphites was then considered, and 41 cases were brought forward in which they had been employed, and in which one death only occurred. The facts seemed to be that the sulphites are the most easily absorbed of our internal antiseptics, but that carbolic acid is the most powerful. The author concluded by saying that the great desideratum was a salt which should combine the two. This desideratum Dr. Sansom had succeeded in supplying, and specimens of compound salts, the sulpho-carbolates, were then exhibited to the Society.

An animated discussion then ensued, in which Dr. Routh, Dr. Hare, Dr. Symes Thompson, and others, took part.

Dr. Day gave the particulars of a case of Fatty Tumour near the Anus. A gentleman had consulted him for irritation of the rectum, when on examination the swelling, which was as big as a hazel-nut, was discovered. It was at first thought to contain fluid, but on puncturing it its real fatty nature was ascertained. Dr. Day brought it forward chiefly on account of its rare position, and of its being an appropriate sequel to a case the President had exhibited of fatty tumour in the dorsum of the foot at a previous meeting.

The President exhibited examples of Foreign Bodies which he had removed from the Bladder, including a portion of tobacco-pipe and a glass tube from a male, and an ivory nail-trimmer which he had recently taken away from the bladder of a female with the lithotrite.

Dr. Head then read a paper on the

IMPENDING STAGE OF PULMONARY PHTHISIS.

After placing the physical signs in their supposed order of precedence, he submitted that they were in general sufficiently expressive to warrant the designation "the impending stage," or at least to mark a phase in the disease antecedent to tuberculisation, arising from lessened vitality in the lungs. To show that lowly organised structures should be the first to suffer in enfeebled states, he instanced ulceration of the cornea. He believed the physical signs were expressive of deterioration of the elastic tissue of the lungs, and saw no reason why such a condition should not be admitted as existing *per se*, or from general debility antecedent to tuberculisation. The author then spoke of the epithelial theory of tubercle, to which there is the fatal objection that tubercle is met with in organs devoid of epithelium. He concluded by saying that, if the theory of impending phthisis be tenable, there is much necessity for exercising the organs of respiration in the manner recommended by Sir Henry Holland, Sir J. Clarke, Dr. Edward Smith, and others.

In the discussion that followed, Dr. Thorowgood, Dr. Greenhalgh, Dr. Gibbon, Mr. Francis Nason, and Mr. Walter Coulson took part.

# Editorial.

## TREATMENT OF TYPHUS FEVER.

GLASGOW physicians speak with a terrible authority on the subject of typhus. We should never lose an opportunity, therefore, of studying their views of the disease. We have before us a paper by Dr. Russell, Physician and Medical Superintendent of the Glasgow Fever Hospital, reprinted from the *Glasgow Medical Journal*, and which will well repay a reading by all persons who wish to acquaint themselves with the results of a large observation of this disease. The basis of Dr. Russell's conclusions is a broad one. From the 25th of April, 1865, to the 1st of May, 1867, there were 1538 cases of typhus treated in the Glasgow Fever Hospital. And it is on the strength of the statistical facts of these cases, and of the impressions produced on Dr. Russell's mind by watching them individually, that he writes. The breadth of this experience may be judged of by contrast. Dr. Todd, some time before his death, handed over to Dr. Murchison all his hospital case-books, extending from 1840 to 1858, and these included only 108 cases of typhus. There are two or three other features of Dr. Russell's fever experience, besides its extent, which give value to his views. These have reference principally to the success of the treatment pursued in the Glasgow Fever Hospital. The average mortality bears a very favorable comparison with that of other institutions, being 11·4 per cent. The mortality of Dr. Todd's cases was 25 per cent. Of 18,592 aggregated by Dr. Murchison, the mortality was 18·78 per cent. The comparison is particularly favorable at the more advanced ages, which is a point specially interesting in connexion with the practice pursued by Dr. Russell. At ten out of fifteen periods of life the mortality from typhus was less than in the Glasgow Royal Infirmary. Not only is the average mortality of the Glasgow Fever Hospital thus creditable, but the average residence in hospital is from a week to ten days less than that of patients in any other hospital. We cannot, therefore, but feel greatly interested in knowing the general views and treatment of a physician so largely experienced, and withal so successful, in the management of one of the diseases which still infest our large cities.

Our principal purpose is to give a general notion of Dr. Russell's therapeutical views of typhus. We only premise that this paper is essentially statistical in its character rather than clinical. Dr. Russell does not believe in any inferences from individual cases as to minute points of practice, but in great aggregate results. There may be differences of opinion as to the best method of arriving at therapeutical conclusions. We may not be able to resist the impression that a knowledge of the individual cases in Dr. Russell's practice would induce us to differ from him as to the applicability to some of them of his general principles of practice. There are many details in regard to which we should like to have a comparison between his cases and those of others —e. g., the frequency of bedsores, which do not come out in manifold tables and huge statistical statements. But we cannot think that the absence of these details greatly diminishes the validity of Dr. Russell's general conclusions. Typhus is such a specific disease, and so sure of careful differention in the Glasgow Fever Hospital, that there is not the least doubt in regard to diagnosis which vitiates most statistics of disease. Practically assured, then, of accuracy on this point, knowing that the disease was less mortal than in the infirmary of the same city, and that whatever the secondary consequences of the fever, they were of so slight a nature as to allow of the patient leaving the hospital a week or ten days sooner than the usual period of leaving, we cannot but greatly prize the information which Dr. Russell has to give us, albeit it is not clinical.

Like many of the physicians who have seen much of fever, Dr. Russell's list of remedies is a very short one. His view of fever is simple. Nothing we yet know will suffice to cut it short. The patient attacked by typhus has a certain definite journey to go, and all that the physician can do for him is to help him to bear up till the journey is accomplished. If we may judge from this paper, Dr. Russell's remedies are chiefly, almost entirely, twofold—food and stimulants. We say food *and* stimulants, for it is of the very essence of Dr. Russell's views—be they right or wrong—to distinguish between food, and stimulants. The food, which he administers freely, rather leaning to excess than defect, is beef-tea, milk, arrowroot, &c. The chief peculiarity of his practice has reference to the restrictions and care with which he gives stimulants. He is at great variance with the late Dr. Todd on this point. He says: "No conceivable circumstances will ever warrant the exhibition of such a quantity as forty-eight or even thirty-six ounces of brandy per diem, and the aggregate statistics of such a practice will bear the most delicate traces of the characteristics of the individual cases." He feels sure that the physiological condition produced by such quantities must have been that of narcosis. It is difficult to state in a few words the general principles which guide Dr. Russell in the use of alcohol in fever. He is very explicit in disapproving all rules of thumb and routine in the administrations of stimulants:—

> "I have made various attempts to formulate some phenomena or class of symptoms which demand stimulation—e. g., a pulse above 120,—but have abandoned them all. The only circumstance which I still regard as a decided occasion for the use of stimulants is irregularity of pulse; and it is, on the whole, from the heart that nearly all true indications are to be derived, certainly not from functional nervous derangements."

It would be interesting to know if Dr. Russell has made use of the sphygmograph. We infer not, from the fact of no allusion being made to it. This instrument might disclose failures of the circulation earlier and finer than those detected without its aid, and so indicate an earlier use of stimulants. It is really in connection with the evidence afforded by this instrument that this whole question will have to be reconsidered. There is a concurrence of opinion to the effect that the indications for the administration of stimulants in fever are to be looked for in the condition of the circulation, and as affording the first and the finest information on this point it is possible that the sphygmograph may really be of the greatest use. It would be easy for Glasgow physicians to determine the value of it in fever, and to say how far the information it affords accords with, and might to some extent supersede, the indications supplied by various and complex symptoms. Of 1538 cases, 645 at some period or other received stimulants, or 42 per cent. Dr. Russell explains that this per-centage is nearly uniform in all hospitals; and that difference of opinion turn chiefly upon the time at which to begin stimulants, the amount to be given, and the time for discontinuing. Taking all recoveries of all ages together, the daily dose was about three ounces and a half of wine, and one ounce of whisky. In the fatal cases the doses are much larger, but still far short of what our neighbors call "la portion de Todd." The maximum of all ages and of both sexes is eight ounces of whisky per day, to males between thirty and thirty-four. But in general the dose was to males from one to two or two and a half glasses of whisky, with one glass of wine; to females, from one to one and a half glasses of whisky, and one to two glasses of wine. The great point insisted on by Dr. Russell is that the amount of stimulation, and all other phenomena, either of the disease or its treatment, are to be studied in relation to the day of the disease. Typhus is emphatically a disease of days; and the exact stage of the disease at which stimulants are needed is found to be a valuable indication of the severity of the case, and a very important element in prognosis. In 451 patients the duration of the fever was exactly made out, with special reference to the beginning of the need for stimulants, to the occurrence of crisis, death, &c. A marked coincidence of important days is thus determined, which must be studied in Dr. Russell's paper. We can only give his conclusion on the practical point of stimulation.

> "Stimulation, beginning very early or very late in the fever, is in both cases apt to prognosticate a fatal issue. The former class is composed of those whose strength fails before the journey is well begun; while the latter, few in number however, comprises such as pass through the fatigue of the fever, but arrive at its close with some serious local lesion—such as pneumonia, pleurisy, gangrene, bed-sores, &c."

It is difficult, as we have said, to gather from a paper so essentially statistical in its character a very clear idea of the symptoms which determine the first administration of stimulants, their dose and their continuance. We only gather that these have reference rather to the circulation than to the nervous symptoms. A merely statistical view, however, of a very large number of cases of so definite a disease, by one specially accustomed to observe it, might be expected to justify confident generalisation as to the bearing of certain special conditions of the patient on the need of stimulation. And so it proves. Among these are age, sex, pregnancy, lactation, abortion, previous habits. Some of these conclusions are full of physiological interest: such as the very characteristic weakness and anæmia of suckling women; the exceptional weakness of certain young ages, as that from fifteen to nineteen; &c. But we cannot dwell on these details. We can only bespeak attention to them, and to the whole of this authoritative statement. It may be that the vital condition of the poor in Glasgow is better than that of corresponding classes in London; that a population which revives its drooping powers with whisky is a stronger one, and fitter to brave typhus, than one which has frequent recourse to gin. This is all doubtful; but, whatever the truth may be, we have in Dr. Russell's paper a valuable contribution to a study of the natural history of typhus, and important data for its good management.

## MORBID PSYCHOLOGY: SPIRITUAL WIVES.

THERE is not a more interesting nor a more instructive study than the epidemics of superstition and folly which from time to time sweep over communities. The germs of these outbreaks, as in the case of sundry physical maladies characterised by periods of rapid diffusion and wide prevalence, are always present; and their active development has a definite and well-ascertained relation to certain physical and mental states of particular individuals. The *nidus* of development is constant; the circumstances which determine the development have, although possessing much in common, differed much in different ages and among various populations. There are, in all civilised communities, a greater or less number of persons who are veritable intellectual *mules* (to use an apt term of Moreau of Tours). These persons are neither sane nor insane; but they are a curious mixture of folly and intelligence, possessing not a few of the characteristics of the lunatic, yet to be held, for all the ordinary purposes of life, as sane individuals. They are distinguished also by certain well-marked physical traits, in which health and disease are strangely mingled, as in the intellect are folly and sanity. They possess in particular a nervous temperament often hereditary, and are prone to convulsion and hysteria. All history teaches us that these intellectual mules have formed the principal soil on which superstition and popular delusions have grown and flourished, and that they have been the chief agents in the dissemination of wild and fantastic beliefs among the ignorant and the foolish. It follows that in the examination of such beliefs past or existing, a preliminary and all-important step should be to eliminate, if this be practicable the part played by these morbidly constituted individuals in their development. It is a duty, in fact, to ascertain, first of all, how far these beliefs are to be regarded as mental aberrations originating in a diseased state of mind and body. To act otherwise is as rational as to hold the intellectual operations of lunatics as of the same value as those of sane persons, and to deal with them by a like criterion of judgment. Yet this, in effect, is what Mr. Hepworth Dixon has done in a recent work on one of the most glaring of the pseudo-religious extravagances of the day—to wit, the doctrine and practice of "spiritual wives." Carrying an amiable principle of entire freedom of thought to an absurdity, and probably influenced in part by the fact of his having eaten salt with the communities and persons by whom the doctrine and practice have been adopted, Mr. Dixon treats the ravings and speculations of individuals confessedly or inferentially lunatic, or of the mongrel species to which we have referred much in the same fashion as he would deal with the ratiocinations of persons whose sanity could not be disputed.

With the religious and social aspects of Mr. Dixon's work we have no immediate concern in these columns, except in so far as we would protest against the vague fashion in which he deals with cardinal questions of virtue and vice, faith and morals. Our duty is principally limited to indicating the morbid thread which runs through the subject he professedly seeks to illuminate. The apostle of the German school of "spiritual wives"—which Mr. Dixon first describes,—"The Pauper Paraclete," was a lunatic subject to hallucinations, at one time an inmate of a lunatic asylum; and his revelations were a phase, and subsequent to the clear manifestation, of his lunacy. The chief priestess of the school is described as "a peerless beauty, of nervous temperament and delicate frame, exceedingly sensitive to sounds and scents, to changes in the weather and to moral appeals." "Brother Prince," of the Agapemone—which place occupies the second part of Mr. Dixon's book.—is shown as an erotic mystic, who maintains that "in him is seen Christ in the flesh, Christ in his flesh;" but the significant conjunction of erotism and mysticism does not suggest to Mr. Dixon that line of examination of Prince which would enable us to form a more definite conception, in the psychological aspect, of the man and his doings. Morally and socially this was not needed. Miss Mary Lincoln, the sister of the transatlantic so-called "Pauline" (a spiritual-wife) Church, who first sets the world's opinion at defiance, is described as a charming hysterical girl with erotic propensities, and who has an outbreak of well-marked hysterical mania as one of her religious experiences. In this outbreak she professes to have heard (a companion writes, under the prompting of the young lady) the voice of GOD warning her to flee from her home, as His judgments awaited the place. She fled, in company with another girl.

"The dear girls left me," says the writer, "and went on, and none of our folks were led to go after them. Some of the saints were at our house; but all were prevented going after them, for some wise purpose. The night was dark. They went across the meadows, through water and mud, to escape the pursuers (for the people were in search of her). She (Mary Lincoln) felt that the clothes she had with her and those she had on, were a burthen. She laid them all aside. They then escaped to the west mountain, and when there she felt that she received the wrath of God which awaited the people—she suffered for the saints; but they made the woods ring with their loud hallelujahs. She then felt willing to return, but knew not which course to take. It rained, and she had nothing on save her dress and thin cape, without shoes. She drew her dress over her head that Sister Flavella might see, and went over rocks, ploughed ground —each step sinking in the mire—through bush, brooks, and mud-holes, sometimes carrying her sister, and arrived at a house about a mile distant from ours at eleven o'clock, after travelling six miles. She returned home in the morning, and is now scarce able to walk. Her friends think her crazy. The saints have all turned against us, thinking we are led by the devil. They will turn back and begin where they left off when you were here. They perceive Jesus in us; but how long they will do so I know not. I will and can bear it in silence until the Almighty shuts the mouth of the vile accusers. We hold up the liberty of the kingdom; but they think it of the devil. I am not considered crazy, but vile. It is all right, and I can say—*Amen.*"

To the student of morbid psychology these hints of the character of representatives of the "Spiritual Wife" doctrine will suffice. They refer to a series of morbid psychical and physical phenomena very familiar to the physician. The part which these phenomena have played in the development of the social extravagance with which Mr. Dixon deals is more important than he appears to suspect. They constitute the starting-point for its right comprehension. Mr. Dixon has not perceived this, and, as a consequence, his description of the communities and people by whom the doctrine of "spiritual wives" is maintained, wants its most essential character. For the same reason, he himself has failed to see his way clearly through the farrago of concupiscence and flagitiousness which he has sought to unravel.

# Medical Annotations.

"Ne quid nimis."

### WHAT IS THE LIMIT OF HUMAN LIFE?

THIS is a question which has given rise to much pleasant literary gossip; to many remarkable statements of alleged fact on the one hand, and to an equal amount of incredulous comment *per contra.* A great deal of learned research has been bestowed upon tombstones, registers, family Bibles, and other records, by the disbelievers in centenarianism; but in the absence of direct proof to the contrary, the balance of probabilities is in favor of possible exceptional instances of longevity. The *Quarterly Review* thinks that the late Sir G. C. Lewis, the most eminent sceptic on this point, was "on the high way to become convinced *nolens volens* that there were in his day flawless cases of *female* centenarianism, although the parish registers ransacked at his instance had failed to satisfy him as to males of equal length of years." The tendency of old people to exaggerate their age has often been remarked, and herein lies one element of doubt; but when the direct evidence of a baptismal register is forthcoming, it is clear that, unless there be a confusion between two persons—father and son, or mother and daughter—of the same name, the evidence amounts to legitimate proof of age, such as seems to be established in the following case:—

A fortnight ago we noted the death of a man at Claydon, in Suffolk, at the age of 106. A medical correspondent, evidently well acquainted with the facts, tells us that the correct reference should be to what could only by a misnomer in this instance be described as "the weaker sex," inasmuch as the venerable centenarian was a "person" named Mrs. Morfew, who had been baptised at Claydon Church on the 28th of November, 1761, her exact age at that date not being known. She acted as midwife at the Barham Union for a great many years, and her services in a similar capacity had been invoked at the birth of many of the present "oldest inhabitants" of Claydon. This remarkable specimen of hale old age was accustomed, up to within a month of her death, to walk alone, and without the aid of a stick, on Sunday mornings to Claydon Church and back, a distance of more than a mile and a half; and her faculties were retained perfect almost to the last, her eyesight being so good that she never wore spectacles. She herself told our correspondent, in reference to her mode of life, that she had never tasted beer, "and except for illness (of which, thank God, I have had very little) never spirits, and then only the smallest quantity of brandy." We are informed that a son of Mrs. Morfew is over seventy years of age, and has lately married his third wife.

Unless Bible history is a myth, we fail to see that the disbelievers in centenarianism have any real ground to stand upon. Physiologically, we know of no absolute law which fixes a definite limit to human life; and, while fully alive to possible sources of error, we see no reason to doubt that to-day, as in centuries gone by, our race supplies examples of extraordinary natural vigor, which outlast the artificially reduced span of mortal existence.

### THE POISON OF THE COBRA.

OUR readers will recollect that some interesting experiments have lately been made in India relative to the action of the poison of the cobra, by Dr. Shortt. This gentleman, having regard to the numerous lives that were lost annually in India from the bite of this snake, was mainly anxious to discover some antidote for its poison, and set about testing the various remedies *in repute* for that object. After much expense, and no little risk to himself, he has found that all are valueless. Still thinking that some effective agent might be known to the natives, he offered a reward of 500 rupees for its production, stipulating that he (Dr. Shortt) should find the cobras and conduct the experiments, which were to be three in number. The prize still remains unawarded. Recently Dr. Shortt has received a communication from Sir T. Madava Row, the Dewan of Travancore, intimating that his Serene Highness the Maharajah has taken much interest in the question, and begs to offer a reward of 1000 rupees, under such conditions as Dr. Shortt may think desirable, to the person who can produce a remedy, and satisfy him that it is effectual against snake-bite. The prize therefore now amounts to £150. The discoverer, whoever he may be, will serve the cause of humanity greatly; and this announcement, we hope, will awaken an interest in the question that may lead to some satisfactory result. Dr. Shortt has been good enough to say that he will be glad to facilitate the conduction of experiments (or to receive any suggestions thereon), and that he will consign to us, for the use of any gentleman disposed to investigate the question, heads of cobras, uninjured, preserved in spirits or simply dried, or in any other way that may be desirable; and, should we advise it—the idea is exceedingly unpleasant, but if science demand we must obey,—he will send one or more cobras themselves for experiment, on our being satisfied that every precaution will be taken to prevent the likelihood of any accident occurring. Certainly never were conditions more favorable for experiment, ugly though it may be. We therefore hope the result will be the discovery of an antidote to a poison which kills so many human beings every year.

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# News Items, Medical Facts, &c.

**HÆMATURIA STOPPED BY BOLUSES OF COPAIBA AND CUBEBS.**—In the *Union Médicale de la Gironde*, a case has been mentioned by M. Méran, in which the hæmaturia was very abundant. Baths, cooling drinks, opium, and camphor were useless; and although the gonorrhœal discharge ceased, the author gave the above-named boluses, as between three to five ounces of blood were evacuated at each act of micturition. These had the desired effect. Another case of the same kind has been benefited by cubebs alone. It may be asked whether the hæmaturia was not on the decline, and would have disappeared without the cubebs. Nor should it be forgotten that perchloride of iron internally. gallic acid, and cold injections, have triumphed pretty often over discharges of blood from the urethra.

**DEATH OF M. LABORIE.**—This well known and highly-esteemed surgeon is another victim to the risks inherent in our profession. He had the charge of the establishment for convalescents at Vincennes, near Paris, and took erysipelas from one of his patients. This soon assumed the gangrenous type, and M. Laborie was carried off, having hardly reached his fifty-fifth year. A great concourse of friends and members of the profession accompanied his remains to the grave; and from the discourses delivered it may be gathered that the deceased is universally regretted.

**SICKNESS IN THE PRISONS OF ROME.**—A mysterious disease has suddenly appeared in the prisons of Rome, which causes an extraordinary mortality among the young and healthy prisoners. The Government maintains that it is neither cholera nor typhus fever, fearing to be accused of having crowded too many persons into unwholesome places. The physicians say nothing, and the ignorant population give way to conjectures little favorable to the authorities.

**ENERGETIC MEASURES BY LEARNED BODIES.**—For some time past sulphate of *quassina* has been largely advertised in Naples, and used in several of the southern Italian provinces; but Prof. de Luca, having doubts about the article, analysed it, and found that there is no such thing as quassina, or alkaloid of quassia He submitted his opinion to the Medico-Chirurgical Academy, who forthwith made application to the Council of Health to stop the sale of this deceptive substance.

**PRIZES FOR 1869 OFFERED BY THE ACADEMY OF MEDICINE OF PARIS.**—1. On the Diseases of the Cerebellum, £40. 2. On Sclerosis in the Different Organs, £34. 3. Clinical History of Insanity with Fancied High Rank, especially in a Therapeutical point of view, £[illegible]0. 4. On the Return of the Uterus to the ordinary state after confinement, with medico-legal deductions as to the time since which a woman has been delivered.

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# THE LANCET.

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J. HENRY BENNET, M.D., T. WAKLEY, Jr., M.R.C.S.E. EDITORS.

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## Lettsomian Lectures

ON THE

## DIAGNOSIS AND MANAGEMENT OF LUNG-DISEASES IN CHILDREN.

By George Buchanan, M.D., F.R.C.P.,

Assistant-Physician to the Children's Hospital, etc.

### LECTURE II.

Mr. President and Gentlemen,—If the diseases that came under consideration at our last meeting deserved anxious study by reason of the difficulties that surround their recognition and treatment, the group of diseases that come next for discussion may found a further claim on your notice through their extreme frequency and destructiveness. For of the whole number of illnesses with which young children are brought to us, at least one-sixth are examples of catarrhal diseases of the lungs; and of the causes of death that carry off children under five years of age, almost that same proportion may be primarily referred to these diseases, to say nothing of the numerous instances where they are fatal as complications of other acute complaints.

The light in which, this day fortnight, I regarded the diagnosis of phthisis in the child was altogether such as we may get at the bedside. To-day I shall ask you to regard the phenomena of bronchitis and its consequences to some extent in the light of the post-mortem room. For not only is a history of physical signs in these complaints of small value unless described along with the morbid appearance which they indicate, but it is around the pathological conditions consequent on bronchitis that most other morbid states in the lung range themselves; and certain of these, to which I made too brief reference in my former lecture, will now come advantageously under review.

Let us begin by recalling the ordinary clinical course of an average bronchitis in the adult; with tolerably smart fever, much cough and sternal pain, oppression of breathing and sonoro-sibilant rhonchus, and succeeding to a stage of dryness, expectoration, first of mucus, and then of muco-purulent matter; the symptoms and physical signs abating after a few days' care, and nothing but a tendency to the recurrence of the complaint being left behind. We know that here the disease has affected the larger bronchia, extending, perhaps, to those of the third and fourth rank; and that the change in them has consisted of engorgement and swelling of the mucous membrane, with a large amount of altered secretion. Exactly this clinical course marks the first kind of bronchitis of which I have to speak as occurring in children; but with them this degree of severity of the disease is reached when quite large divisions of the air-tubes are involved. Such moderate symptoms, so ready a tendency to rapid and complete resolution, do not characterise bronchitis in children when it has advanced to the third and fourth divisions of the air-passages. And for the much greater severity of bronchitis in the child than in the adult, when the same rank of bronchus is affected, there are obvious mechanical reasons. To reduce the calibre of an adult tube of a quarter of an inch or more in diameter by the thickening of its lining membrane, and by the addition of a layer of tough mucus to its inside, is not necessarily to interfere seriously with its function as an air-passage; but the same absolute reduction of calibre affecting the infantile tube of half or less than half that diameter, is nearly to occlude it altogether. In this and other not difficult mechanical considerations, we have, in fact, the key to most that at first sight appears exceptional in the catarrhal diseases of childhood.

Even slight degrees of infantile bronchitis are apt to be accompanied by much pyrexia, not seldom by raucous cough, and occasionally by convulsions. But when the smaller bronchia are affected the course of the disease often resembles that rarer and very fatal form in the adult that we know as suffocative bronchitis, the symptoms of which are largely due to imperfect aëration of the blood. I need scarcely describe the state to which a healthy man is speedily reduced by this disease; his livid face and his cold sweating skin; his incessant cough; the fashion in which he sits up in bed, laboriously giving his sole attention, every moment of the day and night, to the one business of respiration, not daring to interrupt his efforts even for sleep. We know that this condition indicates with him that quite capillary bronchia are involved over a considerable tract of lung. But in children it does not need that the ultimate ramifications of the bronchia should be affected to produce this severe general disease. With them, for the reason I have adverted to, inflammation of tubes scarcely below the middle rank will suffice to give this kind of symptoms, and accordingly bronchitis of more or less suffocative type is a much more common disease in small children than at higher ages. What with an adult is uncommon is with infants a very frequent course: a child who only yesterday was in perfect health is found with great dyspnœa, breathing sixty or even more times in the minute, with pale, anxious countenance, flapping nares, and a restlessness that comes of the attempt to force a new and again a new set of muscles into the service of inspiration. Though expectoration is seldom to be had for our inspection, we see that the cough is at first dry, and afterwards gets looser, with more copious secretion. Ausculting, we hear a quantity of rattling and wheezing sounds, with muco-crepitant rhonchi; the one belonging to the affection of the smaller, the other to that of the larger bronchi. Percussion shall give negative results, or show a diffused increase of resonance. As the disease goes on to an unfavorable end, the paleness of the face is replaced by blueness, and the child sweats profusely. Along with or instead of convulsions comes on a somnolent state, and the patient dies asphyxiated. Then we find the bronchia choked, their swollen mucous membrane and puriform contents giving yellowish spots on section of the lung; and they may, if the course of the disease have not been the most rapid, be found much dilated, forming little cavities, filled with mucus, pus-cells, and ciliated epithelium. Habitually, the air-cells of the apex and edges of the upper lobes have an increased volume, and almost certainly, also, we have a beginning of the stage of collapse, to which we have next to refer.

The form of bronchitis with collapse is most markedly seen in children who are rickety, and when the lung disease occurs in the course of whooping-cough. The collapsed lobules, looking like particles of fœtal lung, sharply marked off from others that contain air or are even emphysematous, are principally found at the extreme base and at the lower margin of the upper lobes lie on a lower level than the general surface of the lung, and can usually be readily recognised for what they are by the effect of inflation in restoring them wholly to the normal aspect. The symptoms to which this form of bronchitis gives rise, and the post-mortem appearances in a fully developed case, may be illustrated by the story of a child of two years old, in whom the disease supervened upon pertussis of three or four weeks' duration. Besides loss of flesh and prostration, the most prominent symptoms were the extreme lividity of the child and its rapid respiration. These had existed for some days before the child came under observation. Notable dulness of the right base up to the scapula was soon detected, and the sibilant rhonchi that existed elsewhere in the chest were accompanied at this spot by bronchial breathing; round the left side there was a similar dulness, giving the appearance of an increase in the heart's area. The skin was pale, the lips blue; the muscles of the neck and nares were in strong action, and there was much restlessness. The child refused food, had a good deal of fever, a pulse of 160, and respirations of 60. An emetic gave relief for a time to certain of these symptoms; it brought away much tough muco-purulent matter, and the rhonchi and blueness were somewhat reduced. The restlessness also was less, but the quietude that succeeded it was that of brain oppression, and the pulse and respiration remained much as before. Two days later the severer symptoms having returned, the emetic was repeated, with little effect, and the patient died after a severe paroxysm of cough. At the the post-mortem examination, the larger bronchi were found almost natural; the smaller, particularly in the right lung, had their mucous membrane red and swollen. Over the parts where dulness had been established during life there was found considerable collapse of lobules, the right lower lobe being almost solid; and in the bluish depressed spots of collapse were observed numerous small yellow points, evidently resulting from the passage of the bronchial contents into the pulmonary alveola. Other lobules, particularly about the apices, were emphysematous. There was a little fibrinous exudation in the pleura.

The mechanism by which this collapse is brought about appears to be this:—A small bronchus gets its calibre reduced by the swelling of its mucous membrane and the exudation of secretion into it. The action of inspiration allows of no air passing through the obstructed tube, but drives the plug of mucus further and further towards the air-cells. Expiratory efforts, on the other hand, especially those of paroxysmal cough, partly because they are stronger, partly because they act from the smaller end of the tapering tube, do allow the escape of some of the air included in the pulmonary vesicles behind the affected bronchus, and thus the lobule by degrees gets empty. Then, instead of air, mucopurulent matter may be sucked into the empty alveoli, in the way that appears to have occurred in the case just quoted. But even in this stage inflation of the lung may prove that the solidification is due simply to the removal of the contained air of the lobule, and not to its infiltration with any inflamm tory deposit. The disease may not have got beyond collapse, and yet the amount of local and or general symptoms may be as in the case recorded, such as would readily suggest pneumonic consolidation.

Collapse, brought about in this manner by the thickening and plugging of the bronchia, may affect separate lobules, or a congeries of lobules, according as several small tubes are separately affected or a single larger one gets impervious. In the diffused form of collapse the dulness on percussion is of course slighter than when many contiguous lobuli get solidified, and bronchial respiration and bronchophony are also less marked. It is collapse due to plugging of a bronchus of some size that comes to give the closest resemblance to pneumonia, and it may even give physical signs difficult of distinction from those of lobar pneumonia. A further difference in the collapse of different cases is in regard of its duration: too seldom does it clear up speedily and altogether; in other cases it remains with almost unchanged characters for several days, and the chronic state may end in death without further anatomical change. But more usually other processes are set up in the collapsed lobules, giving rise to lobular pneumonia and its results.

I take lobular pneumonia with bronchitis, as it is to all intents a direct development thereof; and however much it may sometimes resemble true lobular pneumonia in its symptoms and physical signs, it is essentially a distinct pathological condition, runs a different clinical course, and has altogether a different significance. Lobular pneumonia is always a secondary disease, either to those specific disorders which are accompanied by bronchitis almost as one of their elements (in which rank measles and whooping-cough stand obviously first), or to bronchitis of a primary kind. So far as careful post-mortem observation permits a generalization to be made, the course of the disease is invariably through the occurrence of collapse. We have seen the transition beginning in the case of whooping-cough which I have noticed. After a lobule has become emptied of air, and after more or less of the bronchial contents have been forced by inspiratory action into the alveoli, the lobule itself passes into a state of active congestion and then of hepatisation, and by degrees the test of inflation gives only a partial result, and eventually no air can be forced into the lobule. Then it is found, not depressed below the general level, but of increased volume; not bluish-red, like fœtal lung, but in the earlier stages brighter red, and distinctly hyperæmic, and afterwards of a dull brownish red; not tough with scanty fluid on section, but softened and exuding bloody serum; and in the same lung, at a middle period of the disease, intermediate stages between the two conditions are found. The microscope shows in the earlier periods of this consolidation the parenchyma of the lung unchanged, but the alveoli stuffed with cells, and their epithelium occasionally undergoing some fatty change. The next anatomical change is the coalescence of these collapsed and inflamed lobules into larger masses, which frequently give rise to consolidation of large portions of the lung, especially of the posterior surface. In these nextly, a softening change goes on, and the centre of the lobule loses the dull brown color of the rest, and becomes gray and diffluent, the liquid part having all the character of pus. Or another process may be set up in occluded lobule, and a cheesy matter be formed, which to the microscope presents various fatty elements and nuclei. This occurs at a latter stage of the disease in unhealthy children, in whom, however, miliary tubercle need not exist.

Let us now take up the manifestations during life of these various pathological conditions. I have already narrated a case where the transition from collapse into lobular pneumonia was actually present at the time of the child's death, and it will surprise no one that the exact point where inflammation begins is not to be recognised, and that there are many cases where we cannot affirm that there is more than collapse, although some of the symptoms may be present which I am about to describe as usually indicating the development into lobular pneumonia. The first class of evidences concerning this change consists of indications of increased instead of diminished volume of the lung. With a lung extensively collapsed, in spite of the occurrence of some acute emphysema, the thorax sinks considerably inwards, so that the abdominal viscera are pushed up, or, if the patient be rickety, the sides get greatly flattened, and a constriction is formed round the chest above the liver. On the supervention of lobular pneumonia, it is said that these evidences of lessened volume of the thoracic cavity get less marked. In the second place, the occurrence of inflammatory infiltration of the lobules may be presumed from extension of the dulness, of the bronchial respiration, and of the mucous râles, and by the increased intensity of vocal fremitus and bronchophony (upon which Ziemssen lays chief stress if an increase in it can be established) over the affected parts; and along with this physical evidence, increase of fever, particularly towards night. And generally there is a probability that collapse, after it has been established for two or three days, passes on to the subsequent inflammatory stages. In certain cases, particularly where larger bronchia and some tract of lung are affected, the occurrence of notable *fluctuations* of the physical signs is indicative rather of collapse than of inflammatory consolidation; such fluctuations consisting chiefly in altered site and amount of dulness, with change also in the bronchial respiration and rhonchus. The subsequent stages of lobular pneumonia—viz., the softening of the affected lobules, or the formation in them of a cheesy matter, which may either disintegrate or get hardened, have the greatest interest in reference to tubercle.

In placing before you cases illustrative of the process of lung-destruction by lobular pneumonia, I propose to give ourselves the advantage of noting what significance has been attached to the observed appearances by pathologists whose accuracy and comprehensiveness of judgment give peculiar value to their inferences. With this object, instead of reciting to you similar cases that have come under my own observation, I take, in the first place, a description upon the high authority of Trousseau. An infant at the breast was admitted into hospital after some days of an acute lung-disease, and was found to have evident "pneumonia," which seemed to affect the left side only. On this side was marked blowing respiration and considerable bronchophony. There was much subcrepitant rhonchus, but the percussion note was not particularly dull. These signs were unchanged to the last. On the right side, feeble respiration, and, two days before death, subcrepitant rhonchus, but no bronchial breathing. Considerable fever was present, with much difficulty of breathing. Post mortem a number of yellow-white spots were seen through the pleura, contrasting strongly in color with the red hepatised parenchyma. It seemed as if the lung were stuffed with tubercles, crude or softening. A similar appearance was seen on making a section of the lung, small particles of pus appearing, which being washed away left irregular cavities with indeterminate walls, some of which were partly filled by a soft substance adhering to the parenchyma; and in some of the yellowish spots there was no pus, but only friable matter not removable by water. The pulmonary tissue around was hepatised. Further examination of the lungs, however, soon showed that the appearances were not due to tubercle. It became evident that they came of lobular pneumonia, which in particular lobules had passed beyond the stage of red and even of grey hepatisation, and had got softened, and in places formed true cavities. These later conditions were only found in the left lung, which had been the longest affected.

Now, in this instance, the nature of the disease was readily asserted to be lobular pneumonia, on account of the recent character of the anatomical changes and the rapid course of the disease during life. But we will take an instance of lobular pneumonia with a more chronic course. A half-starved child, brought up by hand, had suffered since its birth with catarrh of the bronchial and intestinal mucous membranes, and, at the age of five months, got a definite attack of lobular pneumonia of the left side. Consolidation advanced extremely slowly from the base upwards, and it was not until the disease had lasted three months that the whole left side had lost its resonance. A few weeks later the child died, after having presented for a week evidence of cavity in the consolidated lung, and also of extensive collapse and pneumonia on the right side. On post-mortem examination, large cavities were found in the left lung, chiefly in the lower, but also in the upper, lobe. The thickened lung-tissue which remained was partly yellowish in color, and in other parts a new formation of connective tissue was observed. There was no miliary tubercle. This case, again, I have purposely taken from a writer of authority, that I might tell you what he thought of the nature of the disease. Ziemssen calls it "the cheesy metamorphosis of inflammatory products—the so-called tuberculisation."

I must take the risk of deviating from the strict course that I had proposed to you in these lectures, for the sake of insisting a little further upon the pathological significance of these states in reference to tubercle. Hitherto the chief investigations concerning phthisis have been into the disease as it occurs in the adult, in whom the diseased processes are far more slow and complex than in the child, and in whom the disintegration caused by non-tuberculous inflammation is less obviously to be seen. Inquiry into the issue of lobular pneumonia in children appears to me likely to furnish more and more evidence of a kind that pathologists have found to an inferior extent in the adult lung: that the deposit in which the disintegrating process of phthisis takes place is not truly tubercle, but is rather the product of an inflammation that is present along with tubercle; and that such an inflammatory deposit, infiltrating the lung or producing cheesy masses in its lobules, may, even in the adult, run the clinical course of phthisis, in the entire absence of any tubercle whatever—at any rate if we understand by "tubercle" the typical matter of grey granulations. More than twenty years ago Dr. Addison wrote: "However paradoxical it may appear, I venture to submit that, at the present moment, we are not in possession of any conclusive evidence that either tubercle or its disintegration ever constitutes the primary and essential cause of the disorganisation that characterises fatal phthisis. It is the inflammation set up round the tubercles that proves the chief source of destruction, first of the pulmonary tissue itself, and consecutively of the tubercles." This view has been gaining much acceptance of late years, and in its main features is adopted by no less authorities than Virchow and our own Andrew Clark. But the observations on which these conclusion were based were made upon the phthisis of adults, in whom lobular pneumonia is a less frequent disease, though it is evident from Dr. Addison's plates and descriptions that certain of the inflammatory conditions he refers to were examples of that state.

Now, children's pathology appears to furnish materials for determining the nature of phthisical processes, much more available than those afforded by the adult. In the child it is common to find lungs stuffed with miliary tubercle, in which not a particle of yellow matter is to be found; it is, on the other hand, common to find other lungs stuffed with yellow matter, undergoing softening (as in one of the cases I have quoted), or it may be retrogression, in which not a particle of miliary tubercle is to be found. And we are not driven to draw our inferences from the complex combinations of the two states, which are all that we commonly get in the adult. While we give the name of "tubercle" to the former sort of deposit, we are constantly compelled to refuse to the yellow kind any more definite title than "an inflammatory product;" for we can trace it as we have seen, directly out of an ordinary lobular pneumonia. Nor is there any reason why, when the two sorts of deposits exist together, we should begin to talk of the yellow matter as "crude or cheesy tubercle." In the child its true separate nature is not difficult to recognise; in the adult we had got into the habit of regarding it as a part of the tuberculous process, just from the circumstance of its infrequent occurrence except along with tubercle.

At the present moment, when our knowledge of the nature of tubercle is beginning to receive enormous accessions by the use of new methods of research, it would be unwise to uphold as proved the theory that there is a fundamental and essential difference of nature (though we may affirm the difference in anatomy and course) between the tuberculous and the pneumonic forms of phthisis. But it occurs to point out to those observers who are now working at propagation of tubercle by inoculation the advantages which children's lungs present to them (1) of obtaining unmixed materials, and (2) of determining the precise site in the lung-tissues of the morbid product they employ.

Deferring the diagnosis of lobular from lobar pneumonia, with anything further I may have to say about abscess of the lung, until we take up the special consideration of primary pneumonia, I pass to a brief consideration of emphysema affecting the lungs of children. This anatomical condition is another of the results of bronchitis; being brought about in part by the distension of one set of alveoli to compensate for the diminished volume of other parts of the lung that are collapsed, but in greatest part being the effect of forcible dilatation of the air-cells by the act of coughing. I see no reason for denying that both the inspiratory and the expiratory processes may be concerned in the production of emphysema; but the fact seems to me unquestionable and of practical consequence, that severe cough is the most effectual mechanism by which it is brought about. The distension of the vesicles in the acuter forms of the disease, during the existence of a bronchitis, can only be recognised, among the other phenomena, by the physical signs of slightly exaggerated respiration and percussion-resonance. But I cannot on this account agree with Barthez and Rilliet, that emphysema is wholly unimportant in childhood; for in its more chronic form it may give rise to considerable dyspnœa, and comport itself much like the disease in the adult. Every now and then we get at hospital children of five and six years old who, having suffered under severe cough, and notably under whooing-cough, some year or two before, are brought to us coughing and wheezing, the face swollen, and the upper ribs projecting and drum-like on percussion, not sharing properly in the respiratory movements; and having a peculiarly coarse breath-sound, but very little evidence of extant bronchitis. In such cases the emphysema has commonly given very few symptoms until the child is set coughing by some little catarrh, and then a pretty severe asthmathic attack comes on, having an apparent gravity out of all proportion to the amount of bronchitic mischief actually found.—Here I must mention, though it may exist apart from emphysema, the occasional occurrence of true spasmodic asthma in the child. I have not myself observed it, but it is described as occurring during a moderate catarrh, and giving rise to very alarming symptoms resembling bad suffocative bronchitis. The history of former attacks, the rapidity of onset, and the prominence of a nervous element in it, are said to make the distinction between the two conditions. No thermometrical observations appear to have been made of this asthma. The speedy restoration of the child from a state of the greatest apparent danger may, it would seem, be the late but certain evidence of the nature of the affection.

Respecting the prognosis of the catarrhal diseases that we have to-day been discussing, I have firstly to say that none of them are to be lightly thought of. Even the ordinary catarrh, which in an adult would never come under the doctor, has a great tendency to pass into a passive state, in which indeed hardly any symptoms are perceived, but in which the smallest cause suffices to recall a disease of severity. A child that is not rickety, and that has passed the period of dentition, when attacked by a bronchitis that is pretty severe, to judge by the fever, the dyspnœa and the amount of sonoro-sibilant rhonchus, will indeed commonly get well with ordinary care. But in a child under eighteen months, particularly if there is any evidence of rickets, the disease is always far more serious; and the prognosis becomes very doubtful when in this condition we get any evidences of collapsed lobules. Convulsions of course indicate a serious form of disease. So, too, do coldness of surface, intense feebleness of pulse, and other evidences of great general prostration. When we have established the existence of lobular pneumonia, or of an amount of collapse that simulates it, a further degree of gravity is impressed on the prognosis; and if a child has evidence of a softening process taking place in the course of lobular pneumonia, a very unfavorable opinion (though not even then a prognosis of certain fatal result) must be given.

Respecting the actual mortality from these complaints, it is difficult to get information that does not mislead. When Trousseau speaks of forty cases of broncho-pneumonia being fatal out of forty-two that came under his care in the Hôtel Dieu, we must remember the very serious nature and the advanced stage of the disease that would be likely to be presented to him there, and we may make some allowance for the unfavorable hygienic conditions of the hospital. Rilliet and Barthez put the prognosis strongly in this light when they confess to having lost all their cases of capillary bronchitis, and the greater number of those attacked by broncho-pneumonia, in the Hôpital Ste. Eugénie; but show that in other practice they have saved nearly half of those who had capillary bronchitis, and two-thirds of those attacked by broncho-pneumonia. At the Children's Hospital in London, I cannot speak about the in-patients from any extended knowledge of my own, and in the published statistics of them no separation is made between the different forms of lung inflammations, such as would enable us to exclude, for instance, the far less formidable lobar pneumonia. From out-patients I need hardly say that no statistical data for determining the fatality of any disease can be gained, as we necessarily miss many of the cases, and especially of the fatal cases, before their termination. But I have a notion, which I give for what it is worth, that our mortality is even below what Barthez and Rilliet give as their more favorable class of result.

Broncho-pneumonia is most fatal when it occurs with whooping-cough, partly, perhaps, by reason of the very young ages at which this epidemic disease may make its attack, but chiefly because of the intense operation of the mechanical causes that here assist in the evolution of the disease. After measles there is a greater probability of recovery; but here especially the general health may remain broken, and then we have to forbode either the deposit of true miliary tubercle in the lung, or else the persistence of a lobular exudation, which may run the course of phthisis.

Turning now to the therapeutics of these catarrhal diseases, I must ask you to bear with me if much of what I have to say verges on the infinitely little. Assuredly, however, it is upon the observance of small details that success in the management of children, and notably of their lung complaints, depends; and I feel the more sure of forgiveness in referring to apparently trivial matters as I am addressing an audience that knows well the stupidity of the average mother or nurse. It follows from what has been said as to the tendency of any of these diseases to pass into more serious forms, that we should regard no degree of them as beneath treatment, and should even, in particular cases, use special measures for guarding against their occurrence. Thus if a child began a winter with catarrh, or if it had had pertussis lately, or if bronchitic complaints would certainly be more dangerous with it than with others—through its being rickety, or through a tuberculous tendency in its family,—we should even in its ordinary life, try to protect it by many obvious, but not less necessary, warnings, particularly by forbidding the absurdities that are apt to be done with the object of making the child hardy. Such a child ought to wear through the winter high flannel frocks, long stockings, and drawers. If it cannot be carried, nor yet toddle about, it is far better kept in-doors all the winter than wheeled about the streets in a perambulator; and, in any case, the days and times of taking it out of doors must be carefully selected. As to the avoidance of lung-disease when measles or whooping-cough are present, it is probably true, as Bartels insists, that its supervention is frequent just in proportion as the air of the sick-room is vitiated; and we shall do all in our power to keep this air pure and warm while we are watching carefully for the beginning of any lung-complication. A temperature of 65 to 70° Fahr., steadily maintained, is the best for patients suffering from these febrile diseases, or from bronchitis itself.

As to the management of established bronchitis and broncho-pneumonia, I know of no advantage from any member of the class of antiphlogistic remedies. Anything in the shape of bloodletting is actually mischievous, and the antimonial treatment is wholly unnecessary. At one time, indeed, I was in the habit of prescribing antimonials as emetics, a method in which the depressing influence of the remedy is at its least; but I find that precisely the same good effects may be got from ipecacuanha. Of one sort or another, emetics constitute by far our most potent means of dealing with the various conditions that are brought about by bronchitis. They cause energetic action of the expiratory muscles, and drive the contents of the larger tubes upwards, while at the same time they have certainly an effect that must be called expectorant upon the smaller tubes. Whether this is produced by their irritating effect upon the muscular fibres of the bronchi, or whether by their causing a fresh secretion from the mucous membrane that loosens the tough mucus that covered it before, the practical fact is that much change in local signs can be detected after the action of an emetic: less rhonchus; sibilus replaced by a looser râle; even percussion dulness sometimes disappearing; the child loses its pale livid color, and presently falls into natural sleep. As I never saw ipecacuanha act injuriously through being given in too large a dose, I always order more than the minimum quantity that is commonly stated to cause vomiting in the child: thus eight grains to an infant under six months, ten grains thence to a year old, and an almost adult dose may be given at two or three years of age. With less doses of ipecacuanha, we are not only apt to fail of producing vomiting, but frequently undesirable purgation is caused. The emetic may be repeated each evening, long enough before the child's natural time of sleep for the immediate effects of it to have passed over. In the severer sort of cases, where the patient is heavy and drowsy, its breathing superficial, and its mucous membrane blue—signs of asphyxia which it is particularly important to relieve by removing obstructions in the air-tubes,—emetics often act with difficulty, and require not only to be given in large doses, but to be combined with some stimulant.

Next to emetics the remedy in which I place most confidence is carbonate of ammonia. I am satisfied that it loosens the contents of the bronchia, and assists greatly in the expectorant action for which we advocate the use of emetics. I give the bicarbonate of ammonia (formed by exposing the ordinary sesquicarbonate in powder to the air until it has lost its pungency) in preference to the monocarbonate. Small children can easily take one or two grains of this every three or four hours, whereas they would be sure to quarrel with the more pungent preparation. Even the bicarbonate, however, has seemed after a while to irritate the mouth, an accident which I have never seen happen since I took to combining chlorate of potash with the mixture of ammonia and ipecacuanha. Ammonia has also appeared to me the best addition to be made to ipecacuanha powder, when an emetic is given in the cases of asphyxiating disease to which I have referred. The action of ammonia on the bronchia is not accurately ascertained; not improbably it is upon the muscular and secreting elements alike. We know that it copiously increases secretion from the skin.

Of other internal remedies I have little to say. Opium, in certain cases of subacute irritation of the trachea and larger tubes causing troublesome cough, is occasionally of much service, but the cases must be carefully selected and the remedy be warily employed. For of course in a case where accumulated secretion is present as a cause of the worst symptoms, and where there is a tendency towards asphyxia, a remedy directed to allay cough and to quiet respiratory movements does harm, and not good. In the cases of dyspnœa referred to as accompanying emphysema, belladonna has never failed to give me singularly good results.

Respecting diet, the food that is at once the most nourishing and easiest of digestion is the best. Often it is advisable to give frequent small quantities of food, as the stomach, shaken about by cough, is apt to reject a larger meal. Children who are breathing fifty or sixty times a minute cannot properly perform the act of sucking, and if they are at the breast one sees distressing alternations of efforts to suck and efforts to breathe ending, without the hunger being satisfied, in increased exhaustion and distress. It is then well to have the breast drawn, and to feed the child with a spoon, or artificial feeding should be had recourse to. In advanced stages of broncho-pneumonia stimulants may be needed, a few drops of brandy in milk being the best form of administering them.

Besides internal remedies, we have in external applications a means of almost equal importance in the treatment of bronchitis and its results. The stronger class of counter-irritants appear to be never of an advantage proportioned to their depressing or irritating effect. The simplest of all, the hot linseed poultice, if effectually used, is probably the most valuable. It can be applied two or three times a day, or even constantly, without distressing the child, or causing more than a little eruption of miliaria, which of itself has a useful effect. I am not going to follow the example of a celebrated authority in discoursing at length upon the virtues of so simple-seeming an application; but I cannot avoid insisting on the need of giving very precise directions to mothers and nurses as to the fashion of using these poultices. To put them on the belly of a child; to make them with half-cold water; to leave them on all night; to let them slip away, leaving the skin wet and exposed, are samples of the way that people are content to obey any general order to "put a linseed poultice on the chest;" and they need to be taught better if we seek to give the little patient real benefit from our treatment. Mustard added in small quantity to the linseed, so that it can be kept on for half an hour or more, is for young children, a better rubefacient than the ordinary sinapism, and is most advantageously added to the evening edition of poultice after an emetic.

With the few simple means that I have indicated, combined and varied however according to the constantly occurring fluctuations in the child's condition, any good effect that I have produced in the catarrhal diseases of childhood has been brought about. I must not omit mention, however, of another means which has not yet had sufficient trial for its acceptance or rejection. It is the application to the chest of cold epithems, of which Bartels speaks in the very highest terms. When constantly applied they do, according to Ziemssen's observations as well as Bartel's own, act with remarkably good, though transitory, effect upon the fever and dyspnœa of lobular pneumonia, exciting deeper inspiration, and distinctly reducing the pulse, temperature, and the frequency of respiration; and it is stated that their employment, even when the immediate effects have been too severe, has not been followed by any untoward result. Of this plan of treatment I can only say that I know something of the analogous use of cold in continued fever, and that in my experience it really does no harm, though it has seemed wonderful that it should not; but I cannot speak of any important advantage from its employment there. Still in the broncho-pneumonia of children the evidence in favor of this method is such that we are bound to get some further information about it.

# Clinical Lectures

ON

# DISEASES OF THE LIVER.

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## No. VII.

### ENLARGEMENT OF THE LIVER.—(*Continued.*)

*Introductory remarks. Normal dimensions and boundaries of the liver. Circumstances under which enlargement of the liver is simulated, and the means of distinguishing such spurious enlargements.*—1. *Congenital malformations;* 2. *Early life;* 3. *Rickets;* 4. *Tight-lacing;* 5. *Certain diseases of the chest;* 6. *Tumour between the liver and diaphragm;* 7. *Abnormal conditions of the abdominal viscera;* 8 *Abnormal conditions of the abdominal parietes. True enlargements of the liver. Subdivision into Painless and Painful.* 1. *The waxy, lardaceous, or amyloid liver.* 2. *The fatty liver.* 3. *Simple-hypertrophy.* 4. *Hydatid tumour.* 5. *Congestion.* 6. *Catarrh of bile-ducts.* 7. *Obstruction of common duct, and retention of bile.* 8. *Pyæmic abscesses.* 9. *Tropical abscess.* 10. *Cancer.*

IV. *Pyæmic abscess.*—The abscesses which are often developed in the liver in the course of pyæmia are for the most part many in number and small, and in these respects they differ from the tropical abscess, which is usually single, and often attains a large size so as to form a distinct tumour. The clinical characters vary in accordance with this anatomical difference, and with the different conditions under which the hepatic disease occurs. Those of the pyæmic abscess are as follows:—

1. There is enlargement of the liver, usually of moderate extent, but sometimes so great that the lower margin of the organ reaches to the umbilicus.

2. The enlargement is uniform in every direction, and does not produce any bulging of the ribs. In exceptional cases only, one of the abscesses enlarges somewhat more than the others, and forms a small bulging tumour at the epigastrium; and in cases of still rarer occurrence, the lower margin of the liver, as felt through the abdominal parietes, has a nodulated character from the presence of several small abscesses or inflammatory deposits along its free margin.

3. No fluctuation can be felt in the enlarged liver. The abscesses are rarely large enough to admit of this. Only in those rare cases where one of the abscesses enlarges so as to form a bulging in the epigastrium is anything approaching to fluctuation perceptible.

4. Pain and tenderness are always present. They are often among the first symptoms noted, and are usually acute in consequence of inflammatory action being propagated from certain of the abscesses to the superimposed peritoneum. The pain is often increased by coughing or by a long inspiration, so that in consequence the respirations are quick and short.

5. Jaundice is present in the great majority of cases—in fully four-fifths; but the possibility of its absence must be kept in view in diagnosis. The intensity of the jaundice varies. In most cases it appears to be due to the morbid condition of the blood to which the term pyæmia is applied, just as jaundice is known to result from many other blood poisons, and then it is usually slight, and the motions are still tinged with bile-pigment; but if the pyæmia arise from an ulcer of the biliary passages, excited by the pressure of an impacted gall-stone, the jaundice may be intense and the excrement devoid of bile-pigment.

6. Pyæmic abscesses of the liver rarely interfere with the portal circulation. Accordingly there is no enlargement of the veins of the abdominal parietes, and only in exceptional cases (from implication of a large branch of the vein), ascites. The spleen, it is true, is usually enlarged but this is due not so much to obstructed circulation as to the tendency of the spleen to enlarge in consequence of the morbid condition of the blood as happens in the course of many diseases arising from a blood-poison.

7. The constitutional symptoms are important in diagnosis. They are mainly those of hectic fever, with emaciation, progressive prostration, and a tendency to diarrhœa, and the "typhoid state." Rigors and profuse perspirations during sleep are common, and afford material assistance in diagnosis; but it is well to remember that they are not necessary symptoms. The rigors occasionally recur at such regular intervals that the attack simulates ague; errors in diagnosis are constantly committed from this fact not being kept in view. On the other hand, the possibility already referred to of rigors resulting from the mere passage of a gall-stone must not be lost sight of. As the disease advances, symptoms of blood-poisoning, such

as a dry brown tongue and delirium, make their appearance.

8. The course of the disease is rapid, usually ranging from one to three months. I have never known the latter limit exceeded. This rapid course may be of service in diagnosing cancer, in which the duration is more protracted, from pyæmic abscess of the liver.

9. The diagnosis will also be materially assisted by keeping in view the circumstances under which the disease usually occurs. Among them the following hold a prominent place:—

*a.* External injuries and surgical operations. When symptoms like those above described follow either of causes now mentioned, there need be no difficulty about the diagnosis. The most of the cases, however, which come under the care of the physician depend upon internal causes, and then the difficulty of diagnosing is increased.

*b.* Ulceration of the stomach or intestine. I have repeatedly known pyæmic abscess of the liver supervene on ulcer of the stomach, and in the seventeenth volume of the "Pathological Transactions," (p. 145,) I have recorded two cases where this occurred. The same condition of liver may follow simple ulceration of any portion of the intestine, or even cancerous ulceration of the stomach or bowel. Pyæmic deposits in the liver only occur in exceptional cases of intestinal ulceration, for the same reason that general pyæmia only occurs in exceptional cases of external injury. It is important to add in connexion with the dysenteric theory of the origin of tropical hepatic abscess, that the hepatic abscess met with in this country, as a sequel of ulceration of the bowel, is multiple, and resembles in every respect the condition met with in pyæmia from surgical injuries.

*c.* Ulceration of the gall-bladder or of the bile-ducts may give rise to pyæmic abscess of the liver, which in this way may be a sequel of gall-stones. I shall narrate to you immediately the particulars of a case where what appeared to be an ordinary attack of biliary colic was followed by fatal inflammation of the liver.

*d.* In the eighteenth volume of the "Pathological Transactions" I have recorded two instances in which a suppurating hydatid cyst appeared to be the starting-point of pyæmic abscesses in the liver.

*e.* Lastly, any suppurating ulcer or cavity, on the outer surface or in the interior of the body, in connexion with diseased bone or communicating with the external atmosphere, may induce pyæmia with secondary deposits in the liver. On more than one occasion, for instance, I have found these deposits in the liver resulting from a tubercular vomica in the lungs.

When the signs and symptoms already enumerated supervene on those of any of the maladies now referred to, the probability of pyæmic abscess of the liver ought at once to suggest itself. But occasionally the symptoms of the primary disease are latent, and the first symptoms are those of inflammation of the liver. Even then, however, the probability of pyæmic abscess ought to suggest itself in English practice, inasmuch as, with extremely rare exceptions, this is the only form of hepatic abscess met with in this country in persons who have never been abroad.

I shall now proceed to relate to you the particulars of a few cases in illustration of the foregoing remarks. In the first case the hepatic disease was the result of an external injury.

CASE 1.—Thomas D——, aged twenty-one, was admitted into one of the surgical wards on August 16th, 1867, with lacerated wounds of the scalp, a fracture of the sixth left rib, and a bruise of the left shoulder—injuries which he had received from being run over by a cab. He had so far recovered that on Sept. 3rd he was able to be out in the garden; but on the same day he was seized with rigors, followed by febrile symptoms, headache, and loss of appetite. During the next two days he had several attacks of severe rigors, like those of ague, followed by moderate perspiration and frequent vomiting.

When he first came under my care, on Sept. 6th, he had all the symptoms of blood poisoning, but without any eruption on the skin. Pulse 120; respiration 36; temperature 103°. Alternate fits of chilliness and perspiration. Countenance heavy and depressed: great lassitude; throbbing headache, but mind quite clear; great prostration, and tendency to syncope on sitting up; frequent retching with tenderness in the epigastrium and right hypochondrium. The tongue was moist, and but slightly furred. The bowels had been freely opened by medicine. The cardiac and respiratory signs were normal. The urine contained a small quantity of albumen, with blood-corpuscles, and epithelian casts of the uriniferous tubes. A wound in the left temporal region of the scalp was found covered with a hard scalp, from beneath which about a tea-spoonful of dirty, not fetid, pus could be squeezed. Soon after the patient's admission he became very restless and delirious; there was no paralysis, but the hearing was preter-naturally acute. The tongue became dry and brown, and there was frequent vomiting and tendency to diarrhœa. The tenderness in the epigastrium and right hypochondrium continued, and the hepatic dulness became much increased, extending down almost to the umbilicus. The surface of the organ felt smooth. The skin was sallow, but there was no decided jaundice.

The patient was treated mainly according to the plan recommended for pyæmia by Professor Polli of Milan, with large doses of sulphites. Sulphite of soda was given in doses of fifteen grains every four hours. No improvement, however, was observed; and the symptoms above noted continued almost till death, at 9.45 P.M. on Sept. 9th.

On examination of the body after death about a square inch of bone, corresponding to the wound in the scalp, was bare and discolored. The bone appeared scratched on the surface. It was not fractured: but between its under surface and the corresponding dura mater there was about a drachm of pus. The veins leading from this to the longitudinal sinus contained pale, soft, non-adherent coagula. The liver was very large, extending down to the umbilicus, and weighing 104 ounces. Its tissue was dark and intensely injected, and riddled with innumerable pyæmic deposits breaking down into pus, from the size of a pin's head up to that of a walnut. The spleen was large, weighed 10½ ounces, and was dark and firm, but contained no infractions. Both kidneys were much enlarged, weighing together 18½ ounces. Their surfaces were smooth, and the capsules non-adherent. The cortical substance was greatly hypertrophied and deeply injected, but was free from infractions. The sixth left rib was fractured at about two inches from the cartilage. The edges overlapped, and were enveloped in callus; but there was no trace of laceration of the lung, or of pleurisy—old or recent—in the neighborhood. There were slight traces of recent pericarditis, and numerous minute-ecchymoses beneath the pericardium.

In the second case the hepatic inflammation followed a simple ulcer of the stomach.

Case 2.—John P——, aged fifty-one, was admitted into the London Fever Hospital on the 6th of October, 1865. For six weeks he had been suffering from pain, tenderness, and flatulence in the abdomen after food, followed occasionally by vomiting. He had suffered from similar symptoms on former occasions, but had always recovered. The hepatic dulness was four inches and a half in the right mammary line. There was no jaundice. Pulse 84. Bismuth and a milk diet were prescribed. Three days after admission it was noticed that the patient had a daily febrile accession about 1 P.M.; and it was ascertained that twenty-two years before (but never since then) he had suffered from ague in Kent. Quinine was accordingly administered in large doses. It had no effect, however, on the paroxysms. On the contrary, they became more severe, came on at irregular intervals, and were followed by profuse perspirations and great prostration. The tongue also became dry and brown, the pain and tenderness at the epigastrium were greatly increased, and the bowels became very loose. On the 16th of October it was noted that he was much lower and greatly emaciated, and that the skin and conjunctivæ had a decidedly jaundiced tint, although the motions contained plenty of bile. The hepatic dulness in the right mammary line was now five inches and a half; but the enlargement was uniform, and free from nodulation. There was considerable tenderness on pressure below the lower margin of the right ribs. Pulse 96. The symptoms above narrated became gradually aggravated. He still had irregular paroxysms of rigors, followed by fever and sweating. On the 21st of October the jaundice was noted as deep, although bile was still present in the motions. The mind was slightly confused, and he had occasional low delirium. He gradually sank, and died on the 24th of October.

On post-mortem examination, near the pyloric end of the stomach, on its lower and posterior surface, was a circular ulcer the size of a crown-piece, with its edges slightly elevated and indurated, but containing none of the microscopic elements of cancer. From the base of this ulcer a small fistulous channel passed into an abscess, almost the size of a walnut, in the head of the pancreas. The posterior half of the right lobe of the liver was studded with minute abscesses, from the size of a pin's head up to that of a pea, containing thick yellow pus. The intervening hepatic tissue was very hyperæmic. There was no peritoneal inflammation over the surface of the liver. The speen was large, dark, and firm. The other organs were healthy.

The next case which I shall refer to is that of a lady twenty-three years of age, whom I saw in consultation with the late Mr. Young, of Sackville-street, in November and December, 1861. It affords an illustration of pyæmic abscesses of the liver supervening on gall-stones.

Case 3.—On Nov. 30th, 1861, I was called to see Mrs.——, who had been married only four or five months. Two years before, she had suffered for several weeks from jaundice, with severe attacks of biliary colic. Ten days before I saw her the jaundice had returned, and during the same period she had been suffering from severe paroxysms of pain in the right hypochondrium, often accompanied by vomiting. Although, notwithstanding the patient's age, her history was clearly one of gall-stones, yet, after making allowance for her hysterical temperament, the symptoms led to the suspicion that there was something more. The pulse was 100, and there was an unusual amount of tenderness in the region of the liver, and particularly in the situation of the gall-bladder. The hepatic dulness was increased; there was also great increase of the splenic dulness. The jaundice was of moderate intensity; and the motions, though very pale, were not entirely devoid of bile-pigment. Leeches, followed by warm fomentations, were applied to the right hypochondrium, and repeated doses of opium were prescribed.

During the first week in December the patient had frequent attacks of vomiting, and on the 4th she miscarried, at the third month. After this she became much worse. She had repeated attacks of rigors, lasting for half an hour or more, and often followed by the involuntary discharge of light-yellow fluid from the bowels. She had also frequent and severe paroxysms of retching, and the pain in the right side became so intense that she could not take a long inspiration without crying out. The patient was never free from pain and tenderness in the region of the duodenum, but the intense pain was decidedly paroxysmal; sometimes, but not always, the paroxysms seemed to be induced by the patient moving or taking a long inspiration. The pulse varied from 100 to 120; the cheeks were flushed, but there were no perspirations; the patient suffered much from thirst, but even fluids were at once rejected from the stomach. The jaundice diminished; the motions always contained bile, and at last were almost natural in appearance. All treatment failed to give relief; she became rapidly emaciated, and was occasionally delirious during the night; and towards the end the tongue was dry and brown, and sordes collected on the lips and teeth. Death took place on Dec. 23rd.

On post-mortem examination the liver was found to be large, and the entire substance of both lobes studded with an immense number of circumscribed abscesses, varying in size from a pea to a small orange, and filled with yellow flaky pus. The outer surface was glued by recent lymph to the diaphragm and adjoining organs. The hepatic and common ducts were pervious, and contained bile. The gall-bladder was collapsed, its cavity being scarcely larger than a hazel nut, and its coats much thickened. A gall-stone, somewhat larger than a pea, was found impacted at the commencement of the cystic duct, and the mucous membrane in contact with the concretion was ulcerated, and partly converted into a blackish slough. The gall-bladder contained about a dozen calculi of smaller size, but no bile. The fundus of the bladder was firmly adherent to the duodenum, and between these two viscera was a closed cavity containing gall-stones equalling in size and number those found in the gall-bladder itself. The corresponding mucous surfaces both of the duodenum and of the gall-bladder was marked by an extensive cicatrix. These appearances were probably the result of a direct passage of gall-stones from the gall-bladder into the bowel in the attack two years before death. The mucous membrane of the first three inches of the duodenum was intensely injected, but not ulcerated. The inner surface of the stomach and intestines presented nothing abnormal. The spleen was four times its normal size. In addition to the coating of recent lymph, the capsule of the liver at several places presented old thickening and firm adhesions. The right lung and pleura were normal.

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# Clinical Lectures

ON

# DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir HENRY THOMPSON,

**Surgeon-Extraordinary to H. M. the King of the Belgians**
**Professor of Clinical Surgery, and Surgeon to University College Hospital.**

## LECTURE IV.

### HYPERTROPHY OF THE PROSTATE AND ITS CONSEQUENCES.

GENTLEMEN,—We pass from the subject of stricture to another very important complaint, and one of common occurrence—viz., hypertrophy of the prostate. It affects a large number of elderly people, and thus the practitioner is almost certain to come in contact with it pretty frequently.

It was stated, on the great authority of Sir Benjamin Brodie, that "when the hair becomes grey and scanty......the prostate gland usually, I might perhaps say invariably, becomes increased in size;" and that is the impression which a large portion of the profession have respecting it. It was certainly that which was generally received when I first began to make some special researches in reference to this matter, now some ten or twelve years ago. I was then at the pains to examine after death all the bodies of male patients over fifty-five years of age who died in the Marylebone Infirmary; and afterwards, in Greenwich Hospital, the inquiry was pursued by Dr. Messer and myself. I took care to dissect each prostate very carefully, and discovered that, so far from the presence of prostatic enlargement being the rule, this condition was quite exceptional. I examined about two hundred cases—not picked cases, but all who died within a certain period, and I found that about one in three exhibited after death some enlargement of the prostate. But of those do not suppose that anything like a large proportion manifested symptoms; for only about one in seven, not more, had symptoms of the complaint So that you see it is not to more than one in (let us say) ten men who live beyond fifty-five years of age to whom you may expect to be called to afford any relief for this affection. That, no doubt, is a large number. If you suppose that one man in every ten approaching sixty years of age has symptoms of enlarged prostate, you will see at once how often, if you have anything like a large practice, you may be called to attend to these cases.

We will now consider one or two anatomical points connected with enlarged prostate. This organ is, as you know, composed of two lobes and a median portion. Now, the part affected with hypertrophy very much influences the results in relation to the function of micturition. It is not necessary that there should be much enlargement of the prostate in order to produce very severe symptoms. On the other hand, you may have a very large prostate, and may have almost no symptoms. Almost the largest I ever saw, as big as a small cocoa-nut, produced very little obstruction to the flow of the urine. Thus if the median portion of the prostate is only slightly enlarged, there may be retention. Let this figure [diagram] represent the two lobes, and this the median portion. If there is a small nipple-like projection at the median portion, just filling the internal orifice of the urethra, that may be quite sufficient to prevent every drop of urine passing by the natural efforts. You will remember, then, that if you have occasion to examine a patient, and you find a very large prostate, it does not necessarily follow that he should have great difficulty in passing his water; and, on the other hand although you may find inappreciable enlargement by rectal examination or otherwise, you may not therefore conclude that all his troubles, and they may be considerable, are not due to this complaint.

I speak next of the symptoms. An elderly man comes to you and says that recently his water has not passed so easily, that it has issued in a dribbling stream, and he cannot propel it; that he requires to micturate a little more frequently, especially in the morning—probably two or three times while he is dressing; after which it becomes less troublesome, but at night it is rather more so than during the day. Then if he does not say much about pain—which, of course, will excite your suspicion of calculus or some other complaint,—you will say, "This is probably a case of enlarged prostate." You do not necessarily proceed at once to pass the catheter, but you will ask the four questions already referred to. You will ask how frequently he makes water, and then, in connexion with frequency, whether the water ever passes without his being aware of it, or without his willing it. In many advanced cases you will find that some urine passes during sleep. Next you ask for pain, and if any, whether before, during, or after the passing of the water. If before, and the patient is relieved by making water, it is probably hypertrophied prostate. If it is after, you may expect calculus, which comes into contact with the mucous membrane of the bladder when the water is gone; whereas if he has a distended bladder, as he is likely to have with enlarged prostate, it is painful as distension occurs and becomes less so as the urine passes off. Then you inquire about the character of the secretion, whether it is clear or cloudy. In most cases at the commencement it is clear. In a great number of cases of prostatic enlargement, although the bladder has not been emptied for a month or even a year, the water is clear. On the other hand, if it is an advanced case the water will certainly be cloudy. And while you are talking of that you will also ask about the stream. You will generally find that it is a dribbling stream different from the stream in cases of stricture. In stricture the stream is often propelled exceedingly well, although it is no larger than a thread, and so long as there is a stream he can act upon it by will, so as to make it stronger; whereas, strain as he may in prostatic enlargement he often cannot influence the stream except for the worse. Then you ask the fourth question, "Do you pass blood?" Usually, in the early stages, the reply will be in the negative, although a little may appear after much exercise, so far suggesting stone.

Then you complete your diagnosis by mechanical means, and for this purpose you will first use a catheter. You should invariable make the patient pass water before you begin, because your object is not merely to ascertain whether enlarged prostate exists, but, what is much more important, how far it is a barrier to the exit of urine from the bladder. The great point to him and to you is, not the size, or condition, or shape of the prostate, but to what extent is it a barrier to the exit of urine. It is the quantity of urine left behind which will determine future treatment. I should advise you to use a gum catheter well curved, and certainly not a small one. As in stricture, always begin with a catheter of not less than 8 or 9, and of course without a stylet. In passing it keep the shaft well back in the groin, so as to maintain the curve. As soon as you have arrived at the bladder, carefully empty it, and note the quantity withdrawn. It may vary greatly, from an ounce up to almost anything you please.. I have drawn off six pints, but that is a very large amount. You may find commonly from six to twenty ounces.

Now with regard to the employment of the instrument for patients with the symptoms described, do not forget that frequency of passing water, and still more the passing of it involuntarily, indicate the necessity for the catheter. It is remarkable how common are the errors, not merely of patients but of practitioners on this point. They are apt to be misled by the fact that the patient insists, "I do not make too little water; I am making water too frequently, and too much of it, and I am sure my bladder must be empty Tell me how to retain my water, and I shall be much obliged to you; don't think of drawing it off." It is surprising how that sometimes influences the practitioner. Nevertheless these are the very circumstances in which you should pass the catheter. Always bear this in mind, (and I wish, figuratively speaking, to render that sentence in the largest capitals,) that INVOLUNTARY *micturition indicates Retention, and not Incontinence.* There are a few exceptions to the rule, but very few. Most of the mistakes that are made on this point arise from the use, or as I shall show you, the abuse of the word "incontinence," which means, of course, that the bladder is empty; and certainly when the bladder cannot hold its contents its condition is rightly described by the word incontinence. Now that happens only in very uncommon, but well-defined circumstances, such as in some cases of cerebral or cerebro-spinal paralysis, and in rare injuries to the neck of the bladder, and in these the urine runs off as fast as it comes from the ureters, the bladder having ceased to act as a reservoir. You see this one external physical sign is the same in these cases and in those in which the bladder is distended with urine; that is, there is urine dribbling off by the urethra. But mark how totally different are the two conditions in question. Whenever, then, you meet with this involuntary flow of urine, miscalled "incontinence," do not confound it with the condition in which the bladder is empty. Rely upon it the bladder is full, and the only way of relieving the patient is by the use of the catheter. I lay great stress upon this, because I have seen lives sacrificed to a forgetfulness of this point. I have made post-mortem examinations of persons who have died from the effects of retention undiscovered during life, misunderstood because the urine constantly passed off, as it was supposed, "so freely."

Now we know that our views of things, and our consequent acts, are very much determined by the manner in which we use and apply words respecting them, and it is impossible to be too clear and defined in all language, especially in that which relates to pathological conditions and surgical practice. I cannot express to you how strong my sense is of the importance of this matter; hence I have made it my constant business to point out the common misuse of terms in connection with this subject.

First, then, the term incontinence, which means the bladder is empty, or "can't contain," should never be employed by you to denote the phenomenon that the patient's urine flows involuntarily; for, as we have seen, in that condition the bladder is generally full. It is better to use another term —viz., "overflow"—to denote that tsate; and then, remembering always my maxim, that "overflow indicates mostly retention, and not incontinence," you will never make the fatal blunder I have spoken of, and which I assert to be so common. This, too, assimilates our usage very nearly to that of French surgeons. The French, with their more logical use of language, speak of the bladder as "engorged" and "overflowing," but never as incontinent, except to denote that rare condition in which the bladder is always perfectly empty. I have, therefore, long been in the habit of denoting a bladder which is full, but allows surplus urine to run off little by little against the will of the patient, as an "engorged" bladder, and the phenomenon thus described as "overflow;" and I hope you will do so too. This brings us to another misapplication of terms. In this country the condition of the organ just alluded to is often called "paralysis" of the bladder, and the unfortunate word leads to mistakes in practice. The bladder is rarely paralysed. I know nothing of it except as an effect of spinal or cerebral changes. The bladder is never by itself the subject of paralysis, meaning, of course, an affection of the nerves either central or peripheral. It may be unable to expel its contents, because there is mechanical obstruction, as enlarged prostate, stricture, or impacted stone, or because the muscles have lost their power of contracting from long over-distension; but this latter condition is "atony" This inability is in neither case due to impaired nervous supply—a subject to be considered at some subsequent meeting.

After this digression, which its importance must excuse, we will go on to complete the diagnosis. While the patient lies on his back you place your finger in the rectum, and examine the size of the prostate, whether it is very tender, and whether the enlargement is more on the right or the left side. Of course you do this as gently as you can. The finger should be well oiled. The best position for the patient is lying on the back, because you can press the other hand above the pubes, and gentle pressure there brings the bladder and prostate near the finger, and you can ascertain whether the bladder is distended or not.

We shall now come to the treatment. The *medical* treatment of enlarged prostate may be dismissed in a few words. There is nothing to be done for it—that is, you cannot diminish the hypertrophy. There is often temporary enlargement from congestion; and that you can do something for. But hypertrophy cannot be diminished by any known means. All sorts of things have been tried: iodine in all its forms. And there is scarcely anything in the Pharmacopœia that presented a chance of doing good that has not been tried. We must simply say that, for the present, we know no means of combating the enlargement itself. But much may be done by way of palliative to the results of the complaint; and much of this treatment is mechanical. This will consist, first, in relieving the distension by the catheter. I have reserved for this place what I have to say about the instrument itself. The reason for preferring, as a rule, the gum catheter for this purpose is as follows:—Different curves are required for different patients; and the English gum catheter I will back against any other instrument, English or foreign, for general use. Unlike the French catheter, which is admirable for softness and elasticity, you have the power of making it assume any form you like—a quality, perhaps, not so often rendered available as it might be, but which to my mind is of immense service. The instrument-maker generally curves the cathether in this way [diagram]: the point straight, and not well curved—the worst form in which you can put a catheter for use. For prostatic enlargement you require a catheter well curved *to its very point.* You should keep the instrument on an over-curved stylet for a month or so before employing it; and you will then find it easily assume the proper form, when you will pass it, as I need not say, without a stylet. If you require a stiff instrument, a silver catheter should be selected; not a gum catheter with a stylet in it. To return: you want the point of course to be carried over the obstruction formed by the enlarged prostate; and as the heat of the urethra always relaxes the curve, whatever it may be, by the time it arrives at the neck of the bladder, the ordinary gum catheter, as you have it from the maker, becomes nearly straight, and will not pass over the enlargement. [Diagram.] Now, when you have a catheter which has been well over-curved for a month or two, you remove the stylet and turn back the shaft, so as to undo the extreme curve and produce an ordinary one. And what happens when you pass it? In spite of the heat of the urethra, the catheter has a tendency to curve more, instead of less, as it passes down the passage. And this is precisely the difference between success and non-success. That little manœuvre I regard as of extreme value. It is a very simple thing: keep the catheter over-curved—not for stricture, but for enlarged prostate;—then turn back the shaft immediately before using. The curve gradually increases as it goes onwards, and it passes over the enlargement into the bladder. This is so simple that it seems scarcely worth making so much of; but I can only tell you that I know nothing of its kind that exceeds it in value.

Then there is another thing: you may want a special curve for a particular case. We have silver catheters with various curves. Here are several which are very useful. But the English gum catheter possesses a quality which, as I have before told you, is not found in any other; put it into warm water and bend it into any form you like; then dip it immediately into cold water, and it will maintain the required form. But the best form so produced may easily be spoiled by your mode of using it. Of course the curve must not be altered while the instrument is passing through the anterior part of the canal, for it is at the posterior part that this form is required: the shaft of the catheter must be kept closely back in the groin, and the penis brought round the curve, so as to preserve the latter until it reaches the deep urethra, when by well depressing the shaft the point will rise over any obstruction into the bladder.

The general treatment is not to be disregarded; and here I shall defer a good deal of what I might otherwise say until I come to speak of chronic cystitis, which will occupy a subsequent lecture. Cystitis is associated with so many diseases of the urinary organs that I may as well refer to the treatment under that head, instead of taking it separately, and recapitulating it in connexion with each disease. But as far as the general treatment of prostatic enlargement goes, the main thing is to prevent local congestion. You must tell the patient above all things to avoid anything like chills affecting the pelvic regions, sitting on cold seats, exposure to cold; too much excitement, sexual or otherwise; long journeys, riding in jolting carriages,—all of which tend to produce pelvic congestions, and to interfere materially with the condition of the prostate.

One other point has relation to the action of the bowels. You may make a man with enlarged prostate very comfortable if you keep the bowels in gentle action. If he has constipation, and scybala lodge in the rectum, their presence is often the source of great discomfort. Sometimes a simple enema of warm water gives instant relief; but, if necessary, the action of the bowels must be provided for by means of gentle laxatives, such as senna, manna, bitartrate of potash, sulphur, or by sulphate of soda; anything which will act mildly, quickly, and without irritation, will keep him in a very different condition from that which is associated with habitual constipation.

I will devote the few minutes that remain to those cases of prostatic enlargement in which the difficulty of passing the catheter is considerable, and there is retention of urine. You may have a patient in whom prostatic enlargement has manifested itself rather suddenly; he may have had symptoms which he has not noticed, but he is suddenly attacked with congestion, he cannot make water, and he is in great distress in consequence. It is not a question how long a time is to elapse before the catheter is to be passed; you should relieve him at once. You find there is a distended bladder, evidenced by dulness of percussion above the pubes. Possibly, before you, others may have come, and you may be called to pass the catheter in circumstances of some danger to life. Now, in the first place, you should be careful with regard to position. I advise you to pass the instrument with the patient in the lying position first, if the bladder is very large; if it is not very large, perhaps it is as well, or better, to pass it standing. You can empty the bladder better in the standing position; but if you find that the bladder is very large, make the patient lie down before you draw off the water. I have known great mischief arise from drawing off a large quantity of water from a patient when in a standing position. I have even known death occur suddenly from this cause. If I had time, I could tell you of a case in which a charge of manslaughter was brought against a surgeon in a court of justice in relation to such an occurrence. The circumstances were all well known to me, for I was there to defend a brother practitioner. In that case a catheter had been passed in the upright position, and the patient fell dead from syncope, when six pints of urine had passed; just as a patient with ascites might do if you tapped the abdomen in that same position. No doubt it was an error, but nothing could be more monstrous than to make it a matter of action at law. It is a very instructive case, and I mention it to show that in cases where the bladder is large, especially in old men, you may have fatal syncope arising in the way I have described. Take care also, in these circumstances, to draw off only part of the urine; and after a quart or so has passed, wait a little before you empty the bladder. If you fail to pass a gum-elastic instrument, by all means use a silver one. The silver prostatic catheter is sometimes essential; that is, one which is much longer and has a larger curve than the ordinary instrument. Sometimes, when these fail, a catheter with a short beak, like the sound or lithotrite, will pass easily. And always remember that anything like obstruction at the end can only denote that you are out of your path. No force should be employed. It is not a narrow passage; it may be a little close, perhaps, when you reach the prostate; but if you find any obstruction, you should withdraw and find another route, to the right or to the left. Never use force under any circumstances whatever.

If you have had much trouble in introducing a catheter you must sometimes leave it in. As a rule it is not good practice, but if an instrument must remain there, that made of vulcanised india-rubber is by far the best; it has generally to be mounted on a stylet for the purpose, which is withdrawn afterwards. It is the least irritating kind, and scarcely ever becomes coated with phosphates.

Subsequently, as the canal recovers, should the bladder not regain its tone, and the catheter is therefore necessary to be used two or three times in the twenty-four hours, you will probably in the course of time teach the patient to relieve himself; and he will often, with a little tuition, succeed remarkably well. But it may happen that the catheter cannot be passed, and the subject of operation for the relief of the patient must be considered. This will follow in the next lecture, on "Retention of Urine."

# Original Papers.

## THE NATURAL HISTORY AND TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By Richard Barwell, F.R.C.S.,

Surgeon to, and Lecturer on Anatomy at, Charing-Cross Hospital.

### No. V.

As by far the larger number of lateral curvatures are primarily dorsal, it behoves us to examine their peculiarities and treatment with more care than was expended, in my last paper, on the lumbar curve. Since, also, ease and rapidity of cure will depend in great measure upon early and accurate diagnosis, it will be desirable to give a few minutes to two sets of considerations: firstly, how to ascertain in the earliest stages that a dorsal curvature has commenced; secondly, how to distinguish that form which I have called "respiratory," from the cases of weight-bearing origin.*

I have discussed at some length the etiology of dorsal curves, and have shown that the *primum mobile*—greater weighting, or larger respiratory action of one serratus magnus—produces first unequal traction backward of the ribs, therefore torsion of the vertebræ, which is succeeded by their lateral deviation. These events, though following each other in the sequence of causes are simultaneous, or nearly so, in point of time. We cannot say that the one precedes the other. For instance, the ribs are so placed on the dorsal spine that any unilateral act of pectoral breathing must immediately, however temporarily, rotate the vertebræ. It may be that lateral deviation of the bones does not so instantaneously follow this torsion, since there is a probability that a certain number of one-sided respirations must take place before the mechanical and muscular forces would so act on this new posture as to cause curvature. I have, however, collected a great quantity of evidence (with which I will not now occupy space), proving that the deviation takes place very rapidly. It is, then, I submit, very conclusively shown that, of all bony parts, the ribs are primarily in fault; and, fortunately for us, their length and position cause them, when they thus recede from their proper station, to move in a long arc round their axes at the vertebræ. They thus act for the spinal torsion like the long finger of an index—passing through a large space, while the axis itself moves through but little.

The first observable sign therefore of a dorsal curve is, on one side of the spine a greater backward bulging of the ribs than on the other; and in a certain time this retrocession of those parts pushes out the blade-bone, producing enlargement and thickening of the shoulder—usually the first part of the deformity which attracts attention. Nevertheless, this accident of the malady is in reality a late occurrence: a careful examination early in the case, and under good auspices of lighting, will give evidence of the vertebral torsion (the ribs being used as indices) long before malposition of the scapula is perceptible.

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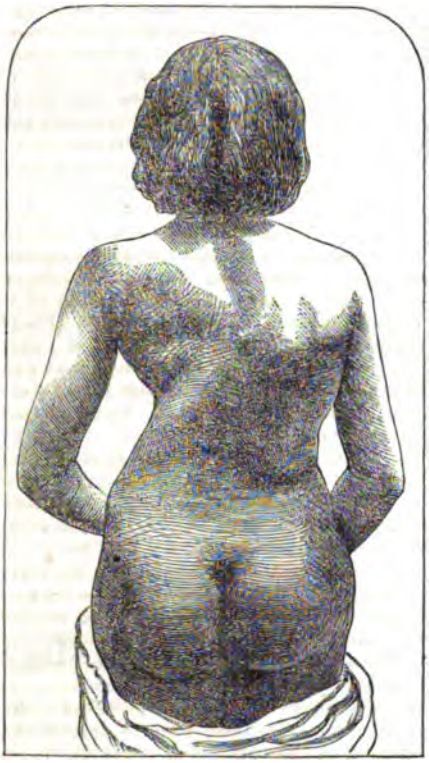
* The diagnosis of lumbar curvatures given in the former lecture suffices for the distinction between that curve and the one now under consideration.

Some stress has been laid upon the direction of light, because it is to be remarked that a greater or less fulness horizontally can with difficulty be detected by a horizontal light. I have the advantage of possessing two consulting rooms, the one with an ordinary window or horizontal, the other with a perpendicular light; and have found that an amount of torsion, not at all or doubtfully perceptible in the former room, is unmistakably evident in the latter by the long shadow which the backward-projecting ribs throw upon the lower dorsal and lumbar regions. This is shown in the engraving annexed, although in the photograph from which the drawing is taken a strong reflected light was purposely thrown upwards on the right side. The patient had a far advanced respiratory curve; for which she had patiently worn instruments of considerable weight for some years. Note the absence of any projection of lumbar muscles on the left side; the line of light running from the ilium is simply the edge of the body and of the hollow from sinking forward of the ribs; it springs from the ilium far outside the erector spinæ.



Examination by sight is absolutely necessary; but we must also use touch, feeling not only for the backward bulge of the ribs on the right side and their depression on the left, but also for the line of the spinous processes. It is hardly necessary, in this stage of our investigation, to point out that, since the axis of vertebral rotation lies just at the posterior edge of their bodies, the tips of the spinous processes are twisted to the left; hence their line may be quite straight, although the spine has in reality curved to the right. Therefore the surgeon must not consider, if he find unevenness of the posterior pectoral walls with a straight line of the spinous process, that there is no lateral curvature. Here, too, I must remark upon a peculiarity which as far as I know, has not been pointed out; there is in the skin of the back a mesial line—a broad sort of raphé,—very plainly marked by absence of hair follicles and gland ducts; while on each side of it these structures run in different directions. This line, while the back is straight, lies over the tips of the spinous processes; but when these latter deviate they glide beneath the skin, and will wander a considerable distance from the median line without drawing the raphé with them, and even in very crooked backs this skin mark will be straighter than the line of the processes. Therefore it is not sufficient to examine by sight alone, for this superficial marking will be sure to mislead the eye as to the position of deeper parts. Outside this line the surgeon should feel for the transverse processes on the convex side of the spine. It may be that the case is not enough advanced to render these parts perceptible; but the accustomed hand will feel in the earlier stages one side (the convex) hard and resilient the other flaccid.

A great aid to diagnosis, or rather, let me say, a reliable means of confirming or negativing conclusions drawn from subtle changes of form, is to be found in the rotation measurer, which I described in my first paper. After having studied the results of experiments with this instrument on the healthy subject, I expected, when first applying it to patients, to find that rotation to the side towards which the spine curves (let us suppose the right) would be greater than in the opposite direction. I soon found, however, that this notion was directly contrary to the truth; rotation to the right side is decreased; while to the left that power is relatively, I believe often absolutely, increased. The reason of this is not far to seek; it lies in the facts that the bones have already performed a certain part of their possible rotatory journey, and the chief muscle for this action (serratus magnus) has, in a measure, done its work. Torsion to the left, on the other hand, replaces the bones and ligaments, and the muscle itself is not merely in a state of quiet, but is in such a position as renders the range of its action larger than usual. Accordingly, in all cases of lateral curvature, the index of my instrument indicates to right and left a difference in degrees, whose number corresponds with the extent of the curvature. A small margin of difference often, indeed generally, occurs in perfectly straight spines; the surplusage is nearly always to the right, and does not exceed five degrees; this difference, especially in that direction, may be discarded.*

Since, then, the rotation-measurer marks a greater or less amount of difference as the case is more or less severe, this instrument becomes of great value as an index of success in treatment; since if the patient be improving the discordance diminishes, and increases if she be getting worse. Thus I shall in the sequel mark the progress of certain related cases by a diary of rotation, to show the precision of its indications.

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* We must here except the cases in which the ordinary orthopædic supports have been worn. Spines subjected to that treatment are usually stiff, and the muscles much wasted, so that they rotate but very little and unevenly; therefore no information can be gained from their action.

When the mere existence of a dorsal curvature has been detected, we must then, in order to apply treatment aright, distinguish the class of curve to which the case belongs and must primarily divide these distortions into two sets—the curve from respiratory causes, and the curve of weight-bearing origin.

In the *Weight-bearing* class of cases I have observed but one sort—it is that which has been already in part described. The curve occupies the upper three-fourths of the dorsal region, and the return for the compensatory curve commences with the lower fourth. A straight line—a silken thread, for instance—stretched between the last cervical vertebra and the middle of the sacrum crosses the double curve *once* at the ninth dorsal vertebra. The most aberrant bones are the fifth dorsal to one side, the second lumbar to the other.* A well-marked rounded eminence of muscular contraction runs upward from the back part of the ilium to the most aberrant vertebra. Most of these curves are to the right; but as *all* respiratory curves, lung-disease being absent, are to the right (save in the very exceptional instances of visceral transposition), a curve primarily dorsal to the left, if the breathing apparatus be sound, and if the heart beat on the left side of the chest, may be certainly set down as weight-bearing. There is to be traced in almost all of these cases some history of hard work, sometimes at an early age, as constantly carrying an infant or other weight, &c. By far the larger proportion of this sort of curve belongs, therefore, to the working class. They are less frequent, and for that and other reasons less important, than the respiratory curves. They are also more easily cured if the individuals can so far alter their habits as to relieve the overworked muscles. This concession is however, in that class of persons with difficulty obtained.

Of the *Respiratory Curves* there are two sorts: the one arising from external causes, restraint of abdominal breathing, and even certain bad habits; the other originating in some malady of the lung and appendices. These latter class of cases are not only very interesting, but of great moment, and it will be well to draw attention strongly to certain important features, especially on that view of the lung malady on which, as a surgeon, I am authorised to speak—viz., of the form, state, and position of curves which should lead us to anticipate internal disease.

The first class of curve is always (save in the extremely rare cases of transposed viscera) to the right; it occupies, like that from weight-bearing, the upper three-fourths of the dorsal spine, and the point of greatest aberration falls on the same vertebræ. It is barely possible to distinguish between the two classes by the mere form of the curve alone, yet since differences exists in its aspects, and as certain extraneous characteristics are obvious, the distinction can always be made. The upper limb of the curve is more marked, the lower less so, and both are less straight—that is to say, suppose the fifth dorsal vertebra at a given distance of lateral deviation in the weight-bearing curves, the lines of spinous processes running upward and downward from this vertebra are almost straight, so that it seems to be in an angle; in the respiratory form the curve, though equal in amount, is more evenly distributed over the nine upper dorsal bones. There is no line of strong muscular development running up from the back of the ilium; the secondary curve is in proportion less severe.

Curves of internal origin assume a variety of shapes, from the gradual long curve occupying all, or nearly all, of the dorsal region, to the well-marked short and sudden aberration of two or three vertebræ occurring anywhere between the first and the tenth. These latter, particularly if they occur high, are generally connected with tubercle of the lung. Pneumonia induces, as a rule, the low long curve which even when the functions of the lung have been restored, continues for a long time, perhaps permanently, after the attack has passed off. Pleurisy produces several forms of curve, but chiefly a high curve, longer and less sharp than the consumptive curvature. In my second paper I hinted at the etiology of these curvatures; they do not arise from contraction on the diseased side, but from the fact that when any portion of the lung becomes unfit to perform its office, or when disease renders such performance painful, the rib, or ribs, over that part of the organ cease to move, while those on the other side continue, under the sway of the serratus, to act unopposed upon the vertebræ, and twist them round. If we consider the great power of the ribs as levers, the length of their power-arm the shortness of their weight-arm, we shall comprehend the sensitiveness of the spine to their action.

In the course of these papers a cause which is often given for lateral curve has been omitted—viz., "*position*;" and this has been done because *position* of the spine itself—i.e., different habits of sitting or lying—does not ever in my experience, produce this deformity. Position of pelvis and thighs is, as we have seen, the efficient cause of curvature primarily lumbar; position of the ribs of those primarily dorsal. The shoulder and arm are, as a rule, in such varied movement that curvature very rarely depends on their posture; nevertheless, I shall immediately give a striking example to the contrary.

In passing on to consider the treatment of dorsal curve, we must dismiss from our minds all inconclusive and unsatisfactory theories concerning its origin in spastic contraction of muscles—in paralysis of respiratory function, in softening or inflammation of bones, intervertebral substance, &c., and accept entirely the simple and, as it appears to me, adequate doctrine taught in these lectures—that in the sequence of causes for dorsal curvature torsion precedes lateral deviation,—that none of the spinal muscles proper are capable of producing such rotation; but that the lever-like arrangement of the ribs, enabling the serrati to turn the trunk in either direction, gives to those muscles, when unilaterally and unduly exerted, the power of inflicting on the vertebræ a permanent twist, which of necessity is followed by lateral deviation. Perhaps, however, some of my readers, unaccustomed to watch the power of muscles in producing deformity, will scarcely estimate the extreme sensitiveness of the spine to the exaggerated action of one serratus; let the following case illustrate this point:—

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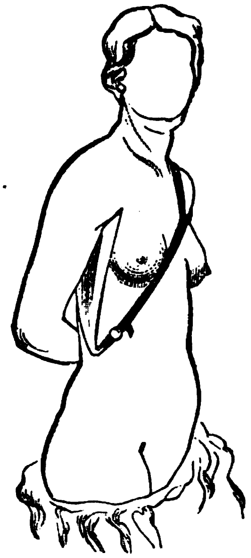
* These numbers may not be absolutely rigid, but are remarkably uniform.

Mr.——, aged nineteen, came to me on the 9th of Februaay, 1867, with a far advanced dorsal curve to the right. He was by no means weakly but on the other hand muscular, being used to strong exercise, more especially with the dumb-bells. Rotation was very marked, the ribs and the lower angle of the scapula projecting very much backward; but there was something very peculiar in the distortion it bore, markedly all the characteristics of a weight-bearing curve, with the exception of its most prominent feature—the strong development of the left sacro-lumbalis and longissimus dorsi. It is true that he confessed to using the dumb-bells rather more with the right than with the left hand; but in all my previous cases I had always found such or similar work produce with the curve the muscular elevation so often mentioned. The condition was, to my mind so anomalous that I re-examined all my minute records, my photographs, and my theory of lateral curvature. On his second visit I observed this peculiarity of attitude: he always stood with the right hand placed far back on the hip or on the loins, and threw his elbow as far back as possible. I kept him with me as long a time as I could spare, and standing as much as possible. This position, by throwing back the base of the scapula, cased the serratus to drag upon the ribs, and not only the absence of an extra burden, but the fact of his supporting the weight of the trunk on the right hand, precluded the extra development of the left erectores spinæ.

Accepting, then, the doctrine as above shortly enunciated, it follows that to cure such condition we must proceed by causing the serratus of the convex side to act less, that of the concave side to act more, upon the ribs; furthermore, that we must do this by means analogous to and commensurate with the cause of the one-sided action—namely, with overweighting of the arm in one, with exaggerated and unilateral pectoral breathing in the other, set of cases.

Let us first take the class of dorsal deformity originating in weight-bearing. These cases are chiefly met with among the working classes, and there is therefore difficulty in enforcing those alterations of habits and that attention to directions necessary for recovery. Even there, however, much can be effected; and I have succeeded in curing many cases occurring in careful, well-conducted families of this order. In the first place, it is necessary either to relieve the patient of the work which produced the distortion, or to alter the mode of its performance. This work is generally carrying an infant or other burden: even long-continued sewing will produce slight curvature.* However we may wish to alter the mode of carrying burdens, it does not answer, save in the earliest stages, merely to tell a girl to use the other hand. I have, indeed, seen curves already well marked rendered worse by such ready and rather rough expedient. My rapidly decreasing space does not allow me to explain the pretty obvious reason for this exacerbation: suffice it to say, that it is best of all that the work cease for a time; next best, that the burden be supported on each hand alternately. It is not at the moment when all the body is braced to perform some act of strength that the mischief is done, but in the longer lapse of duller work, when the antagonist muscles, or those that fix the points of origin, neglect their duty, and allow the muscles to lean upon bones and ligaments for their support. We have, then, to obviate the effects of constant or frequent pressure, rather than of exceptional action; and for this reason I have devised a bandage, or sling intended, not to support any great burden, but simply to hang the weight of the right shoulder on the left one (supposing curvature to the right). The difficulty here is the fact of both parts being on the same level. This was overcome by forming a strut, or beam, consisting of a **V**-shaped piece of very thin, highly tempered steel, the upper ends of which are connected by a thick india-rubber cord, upon which (properly padded) the shoulder rests. From the lower part of the point of the **V** sufficiently broad pieces of webbing pass behind and in front of the body to the left shoulder, and these bands are interrupted at intervals by elastic cords dispersed as rings, and by buckles, with means of procuring proper tension. The bandage, properly managed, does not cut. It fully answers its purpose of relieving the right serratus; but since, in all but the earlier stages, it is necessary to produce also another effect, this sling is to be combined generally with a support which I have termed the "oblique bandage." The object of this latter band is to uphold the spine and sides of the chest; but as it will be specially described in the next paper, I will now merely mention it as a band also to be used in this form.



The Shoulder-sling for weight-bearing curves in early stage.—The triangular part under the arm consists of a triangular support whose upper side is elastic and soft. The belt portion is rendered elastic by the insertion of strong india-rubber rings.

The points regarding position to be especially noted are these:—The patient should be induced to carry the right arm with the elbow a little in front of the body. A convenient and not an inelegant posture is insured by placing the hand on the left side at the waist. The left elbow and shoulder should be habitually thrown rather back. In sleeping, the patient should be encouraged, whatever posture the body may assume, to keep the right hand on the left shoulder or left side of the neck. The left arm, if the posture be not uneasy, should lie behind the body. In the paper No. III. a woodcut showed the action on the spine of the sloping seat; and it is to be observed that although this agent was especially designed for lumbar curves, yet its action does not stop at the loins, but affects also the back, and is of great value in all forms of dorsal curve.

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* The mere movement of arm and forearm has, of course, nothing to do with the production of curvature. In all manipulations requiring evenness and uniformity of action, some part is kept fixed as a *point d'appui*. Those who have watched women at the needle will have observed that while the arm and forearm are allowed free play, the shoulder and blade-bone are held peculiarly still: this fixity, being produced almost entirely by the serratus, has its effect on the spine.

The exercises to be used in the weight-bearing curve require very careful application, because there are certain points to be considered which I have till now purposely postponed. It is evident that if a weight have produced upon its support a certain effect, that consequence may arise from the excess of weight (either in mass or in time), or from the weakness of the support itself. In practice both these forms of case present themselves to our notice; and, besides, there is a third variety: the support, originally strong, has been injured, and the strength has for the time disappeared. In each one of these classes we must arrange differently our mode of using exercises, and their intensity; in the stronger and the rarer form, we may employ them immediately after having by the above-described devices produced some effect upon the curves, and straightened them to some extent. In the cases originally weak the work must be very gradually and lightly applied; in those which have acquired debility, exercise—even the sloping seat—must be avoided until a considerable improvement in health has been obtained.

The exercises are chiefly directed to the left scapula. Firstly, after by the other means described a certain improvement has been effected, and if the amount of debility do not forbid, we may weight the left arm slightly. This may be done in any way: a piece of plumbers' lead, properly protected, squeezed on above the elbow, is a convenient plan. Let the patient stand in the position of a soldier at "attention," with the right side against the wall; then slowly lift the left hand and arm, at the same time throwing the head back: or simply, in the same position, with the neck well bent back, let her only lift the left shoulder several times. A stronger exercise is to raise the left arm slowly from the side until it forms a right angle with the body, the head being well bent back. Again, to swing the left arm strongly backwards and forwards nearly at right angles to the body, the hand pronated in front and supinated behind; when the patient is strong enough, a weight may be placed in the hand. The influence on the ribs and spine of the last two exercises will be much increased by the following device. A hook or staple on the patient's left holds an accumulator attached to a handle grasped by the patient on the right, with her arm passing in front of her body, so that the force draws the hand well over to the left.

If the weight-bearing curve be in the opposite direction, all these manœuvres must be reversed; they are not to be used lightly nor indiscriminately and must be from time to time rigidly watched.

## ON CHRONIC ALBUMINURIA, AND ITS FERRO-ALBUMINOUS TREATMENT.

By David Nelson, M.D. Edin.,

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In the year 1860 I published a paper upon this same subject, with the object of drawing the attention of the profession at large to a method of treatment based on the principle of blood degeneration and drainage of albumen from the body, and which had been attended with considerable success. The cases upon which that paper was founded, and which were therein recorded, had been watched for a considerable time before; the one in which the treatment was first thoroughly carried out being in the Queen's Hospital, in 1851, and of which (in a clinical lecture published in 1852) I took occasion to remark in conclusion:—"All these facts point to the inference which I would wish to enforce—viz., that this degeneration of the kidney is similar to degeneration of the lung and other organs; and that, although the exciting causes may often be of a local nature, we are to look for the origin of the malady chiefly in the general condition of the patient, and consequently apply our remedies to the part certainly, but still more certainly, if the expression may be allowed, to the whole material and machinery of nutrition."

It is not necessary now to go over all the matters referred to in that former paper; but it is only right to indicate the leading point upon which the whole question hinges—namely, that the disease in this form, being neither febrile nor inflammatory, is a local expression of a general low condition of the system, usually occurring in the phlegmatic temperament, and either induced by accidental loss of blood, or true anæmia, or else inducing the latter. The usual primary features being either an accidental loss or an idiopathic diminution of the red particles, and a drainage of albumen, the chief object, therefore, is to improve the condition of the blood, and prevent or lessen the discharge of albumen, or compensate the system for its loss, the principal means to attain such ends being iron and albumen.

Whatever else may be the accompanying treatment, this must be viewed, under these premises, as forming the essential basis, without which all others would prove of slight avail. Yet not that those other aids are of little value, for they are frequently, or rather almost always, necessary towards enabling the system to appropriate the materials so furnished. A healthy constitution would of course derive sufficient albumen, iron, and all other natural elements from the common food; but in this case it will too often happen that no mere furnishing of the requisite materials will serve that object, but the stomach will require to be aided by tonic bitters, and by peptic liquor in combination with soda; the first to excite the languishing appetite, and the second to promote the process of digestion. I am not here unmindful of an observation often repeated by persons of a certain school, to the effect that the treatment of symptoms is quite unnecessary; because, if you cure the essence of the disease, the symptoms will necessarily vanish. But they forget that the real nature or primary root of disease is generally altogether unknown, and we have nothing to deal with but a group of symptoms of which the disease is made up, and which must be met as they arise. In measles, scarlatina, and typhus we have nothing but a series of symptoms thus to deal with, all believed to be the consequences of a certain invisible and intangible virus absorbed into the system, but which we are no more able to reach and arrest, when once there, than we are able to reach and arrest the cause of a storm; wherefore we can only seek to abate symptoms, and thereby lessen the degree of danger. Certainly such a disease as syphilis and the like may be somewhat clearer in origin and progress, and it would be vain to grapple there with this or that symptom without specifically neutralising the poison. But such diseases are the exceptions; and so, even in this matter of chronic albuminuria, although we endeavor by supplies of iron and albumen to supplement the deficiencies of the system, yet we know that there is a profounder cause underlying the deficiency of the elements, and which profounder cause prevents the exercise of those vital chemical affinities which ought to eliminate a sufficiency of such matters from the daily diet of food and air. But because we do not know, and therefore cannot deal with, that profounder cause, we are not therefore to neglect symptoms which we find we can overcome with advantage more or less permanent. Nay, we have innumerable cases of all kinds in which the exciting cause of the symptoms is quite apparent, but, being irremovable, we yet treat such symptoms with great benefit. For example, witness the pain, constipation, vomiting, &c., which attend internal tumours, cancers, pregnancy, and the like; yet who would let such symptoms run on unchecked because he could not remove the too obvious cause? Ordinary practice is a sufficient answer to such views. And so, in like manner, the numerous train of symptoms inducing or induced by this disease of the kidney—namely, anorexia, dyspepsia, vomiting, cough, anasarca, and the leading feature, albuminuria itself, are each to be combated by their appropriate remedies; while we seek to meet the prime and essential characteristics of the malady by supplying the blood with red particles, and otherwise promoting a sound nutrition, and relieving the kidneys of congestion and excess of functional exertion, by opening the skin, liver, &c.

Seeing, then, that the disease is usually, or rather perhaps always, preceded by anæmia, and that after its manifest induction, as proved by the extensive and persistent presence of albumen in the urine, the anæmia becomes greatly increased by the drainage of the nutritious albumen, it follows that the management of the anæmia should be the chief object kept in view, and carried out by the exhibition of iron and albumen in a direct and positive manner. Whatever may be the hidden reason why constitutions of a certain kind, as already observed, fail to appropriate the iron or other elements of nutrition which healthy bodies take up from the usual supplies of food, air, and light, we do find, as matter of fact, that their condition becomes improved under an artificial increase of such supplies, and therefore we furnish them; steel, albumen, and free exposure to the warm air and sunshine, being the basis of operations.

Since the publication of my papers in 1852 and 1860, Dr. Hassall of London has reported cases in which he used such treatment with much success, and my chief object in now recurring to the subject is to elicit such experience in the matter as my professional brethren may see fit to make known.

By the adoption of this line of practice, I hold, as before, that—

1. In cases of threatened disease, it may be averted by the treatment.

2. In cases not very far gone, it may be arrested or greatly ameliorated.

3. In cases even considerably advanced, it may be ameliorated and kept in check.

4. In cases of extreme disorganisation, the fatal issue may be indefinitely postponed.

5. Total disorganisation is, of course, quite hopeless.

The cases now to be adduced are brought forward to illustrate the issue in different degrees of severity and complication; some being very encouraging, and others merely showing the usual fatal result of extreme disease. That the fatty and granular degenerations should arise from defective nutrition, and inactivity of the nervous and muscular systems, can be readily grasped; but why the deposition of such matters should take place sometimes mainly in one organ, and sometimes in others, as in the mesenteric glands, the glands of the neck, the intestines, liver, kidneys, or lungs, is a more mysterious question. But, looking to the connection of the state of the skin with the albuminuria of scarlatina, and the fact that in most cases of chronic idiopathic albuminuria there is a marked dryness of the skin, and a great diminution of the perspiration, we are led to infer that the albuminuria may be in a great measure induced by a prior inactivity of the skin, due to external cold, or sedentary habits, or internal debility of the circulation, which would cast a large share of vicarious duty upon the kidneys, and so lead to chronic congestion, with consequent structural degeneration. This view of the matter led to the adoption of a fresh element in the collateral treatment of the disease, apparently with good result—namely, frictions of glycerine, which have rendered the skin more pliable and elastic, diminished its dryness, and cleared the pores of a certain viscid, brownish-colored matter, which appeared to block them up, and gave the surface a dirty, smoky-looking aspect.

The induction of a moist, warm perspiration by this means I have seen in a very marked manner, especially in one patient, an old lady, who had been chronically affected with urticaria, and whose skin was dry and scurfy, so much so that she had long had no perceptible perspiration whatever; but, after a few applications of the glycerine, in conjunction with cholagogues, a free perspiration was restored, with a removal of her annoying complaint, which had gone through long previous treatment with little or no good result.

Extreme dryness of the skin is a constant characteristic of another most formidable and usually mortal disease of the kidneys, namely diabetes; and the like accompaniment has been already spoken of in connexion with scarlatina, as well as measles. There is a similar dryness and scurfiness in phthisis, to which the usual colliquative sweating of that disease is a mere reactionary effort, and which, when arrested by astringents, will often manifest itself by anasarca of the extremities. In all such cases the glycerine will be found a useful agent in keeping up the steady action of that important functions of the skin, as an excernent, and saving other organs, such as the kidneys, liver, or intestines, from having that additional burden thrown upon them, and so inducing secondary disease.

I shall now recite a few cases, differing in kind and degree as regards other features, but all characterised by albuminuria of more or less long standing, and the absence of any marked febrile or inflammatory symptoms.

Case 1,—Miss S. R——, of Birmingham, aged twenty-eight, was first seen on August 5th, 1861. She had cough and pain in the loins. The menses had been gradually diminishing in quantity and color, and had almost disappeared for two or three months. Micturition was frequent but scanty, and her legs were swelled; face pale and puffy. On examination, the urine, on settling after boiling, was about one-eights albumen. She was also afflicted with indigestion, there being habitual flatulence, acidity, and sense of weight after food. She was ordered pills of aloes and assafœtida, a mixture of peptic liquor with soda and ipecacuanha, and an anodyne liniment for the loins.

On the 14th she was easier in the stomach, but was puffy, and complained of debility. . She continued the aperient and the digestive, and had quinine and steel three times a day with meals, including at least two eggs a day.

On the 19th, some sense of weight at the uterus being felt, she was ordered steel and ergot. This was followed by a discharge of menstrual fluid, which was, however, scanty and pale.

On Sept, 2nd she felt better, and looked better, though still pale; urine much the same, but micturition not so frequent.

On the 9th she felt much better and stronger, having continued the pepsine, the quinine and steel, and extra allowances of pure albumem. The puffiness of the legs had much diminished, and the albumen in the urine was about one-tenth.

On the 22nd she felt weak and looked pale, and by the 30th complained of pains all over the body, apparently of a rheumatic character. Colchicum and opium were added to her mixture.

On Oct. 7th the pains had gone, but cough had returned. She had ipecacuanha and morphia in her peptic mixture, and went on with the quinine, steel, and albumen.

14th.—She was much better in every respect; her color had improved; she was equal to good exertion; there was no swelling of the legs, and the albumen in the urine was only nominal—a slight flake at the bottom of the glass. She now went into the country, going on with the tonic treatment.

28th,—There was no anasarca of legs and no albumen. The menses had reappeared, of full quantity and good color, lasting four days. She said she felt quite well and like herself again.

Case 2.—Mrs. E. A——, of Hill-top, was first seen on Feb. 6th, 1862. She was about thirty-six years of age, tall and pale, and complained chiefly of dyspepsia and giddiness, with great debility. The menstrual flux had been scanty and pale for some time before. She was anæmie, and had anasarca of the legs. She was ordered a mixture of peptic liquor, with tincture of steel, and a draught of oil of male fern after some days.

Feb. 13th.—She reported the passage of a tapeworm, and the giddiness was gone. Some urine brought for examination showed one-tenth deposit of albumen. The skin was dry and scurfy. She was ordered quinine and steel, with an alkaline peptic mixture, and glycerine for the skin.

20th.—The swelling of the legs was less, and the albumen had somewhat diminished; the skin was softer and moister, and the color better; she felt stronger. The remedies were continued.

March 6th.—She said she felt strong and well; she had had a copious, well-colored discharge of the menses; there was no swelling of the legs, and the albumen was very slight. She continued the tonic treatment, with albuminous diet; and, on seeing her once more, on the 27th of the month, there was no albumen at all; she felt well in every respect, and looked well in color, but was advised to continue the remedies for a time and leave them off gradually.

Case 3.—Miss M. S——, near Atherstone, presented herself on October 20th, 1862. She complained of long-standing amenorrhœa and anasarca. She was pale, puffy, and weak; the ankles were ten inches in girth, and, while pitting, felt firm and fibrinous. She was ordered quinine and steel, with one-twelfth of a grain of calomel three times a day with food, and a diuretic mixture twice a day, containing nitrate of potassa, as a solvent of fibrin.

On the 27th the legs were softer and lessened in girth; she said she could walk with more ease and elasticity. The albumen in the urine was found to amount to one-half. The calomel and nitrate of potassa were withheld; the quinine and steel were continued, with an alkaline peptic mixture. She was ordered one drachm of nitrous ether twice a day in gin-and-water, and to have an albuminous diet—though she disliked it whether in the form of eggs or meat, as in common in such cases, there being very frequently a loathing of all animal food.

Nov. 3rd.—The legs were considerably less swollen. She felt decidedly better and looked less anæmic; the albumen was about one-fourth. She continued the treatment, and had glycerine rubbed into her skin, which was dry and scurfy.

10th.—She felt better in every respect, and was told to persevere; the albumen was about one-sixth.

24th.—The legs was free from swelling; she was better in color, could walk several miles continuously, and had had a good menstrual discharge. The skin was softer, and the albumen one-eighth.

She was seen again in the course of the following month; and as there was no swelling, and the catamenia had returned, and she felt what she called well, and looked better in color, the visits were discontinued; but the albumen at this period amounted to one-tenth. She was advised to persevere with the carbonate of iron with meals for some time, that form of steel best suiting when it is to be used for a length of time, the muriage being objectionable from its astringent action on the stomach and bowels, as well as on account of its effects on the teeth and palate.

CASE 4.—Mr. W. A——, of Birmingham, was first seen on Aug. 6th, 1863. He was tormented by nausea and frequent vomitings; had anasarca of the legs, with large belly and turgid scrotum. The bowels were costive, and urine very scanty; pulse very slow and feeble; some degree of valvular obstruction. He was pale and pasty, and the eyes were swollen in the morning. The liver was considered as implicated in the mischief, and he was ordered pills of podophylin, colocynth, and hyoscyamus, with a mixture of bicarbonate of potassa, iodide of potassium, colchicum, and nitrous ether, in a vehicle of tincture of calumba.

On August 13th albumen was detected to the amount of one-fourth. The vomitings had left, and he felt his limbs and body more movable, though little change was apparent in the swellings. He was ordered quinine and steel in addition to the mixture, and to have an albuminous diet, with egg at breakfast and supper.

20th.—The local dropsies had suddenly disappeared, coincident with a plentiful diuresis, and large evacuations of serum from the bowels, due to the podophylin. The tonic treatment was continued, and he took also an alkaline peptic mixture.

27th.—The albumen had diminished to one-eighth, and he felt in all respects better.

Sept. 3rd.—He complained of anorexia and some return of the sickness, and said the peptic mixture felt heavy and uncomfortable to the stomach—a rare but occasional occurrence. The albumen was about one-tenth. He continued the quinine and steel, and had a mixture of bicarbonate of soda, tincture of calumba, and hydrocyanic acid.

10th.—The albumen was further diminished. He reported himself as altogether better, and said he felt "himself again."

On the 17th the albumen was about one-twentieth, and by the 24th was only about one-thirtieth on setting. To his own mind, however, he conceived himself to be quite cured, and said he would go on with the tonics, and return if he had any further symptoms of illness, meaning thereby the more apparent evidences of vomiting, dropsy, and the like.

CASE 5.—Mrs. E. P——, of Birmingham, first seen on Aug. 31st, 1863, had turgid, pitting belly, swelling of the labia, and anasarca of the legs, the right ankle measuring eleven and the left twelve inches. The uterus was adherent towards the left side of the pelvis. The liver seemed involved, and she was pale and leuco-phlegmatic. She had lost much blood after a confinement, and the menses were pale and scanty. Albumen about one-third. She was ordered pills of podophylllin, colocynth, and hyoscyamus, and a diuretic mixture of iodide of potassium and nitrous ether, with calumba; also quinine and steel with each meal, and an albuminous diet of meat, eggs, &c.

Sept. 7th.—The right ankle was reduced to ten inches, and the left to eleven. She felt a little stronger, and was not so sleepy. The treatment was continued.

14th.—The right ankle was nine inches, and the left ten, and the albumen was reduced to one-fourth. The labia were natural, and the belly was soft, and had no fluctuation or pitting.

21st.—The right ankle was quite natural, while the left was also much reduced, but still puffy, and pitting slightly. The other swellings had gone, and she had improved in color and strength.

Towards the end of the month she felt herself quite well enough to go through all her household duties with ease. She considered herself better than she had been for a very long time, though the albumen was still about one-sixth or one-eighth of deposit, for the tube was of unequal calibre. She was to persevere with the tonics, and return if she became worse. As usual, she viewed the dropsy as the disease.

CASE 6.—Mr. T. B——, of Birmingham, was first seen on Oct. 26th, 1863. He had severe cough and dyspnœa, with profuse pulmonary mucus. His face was blue. There was violent commotion of the heart, with great valvular obstruction. The anasarca was extreme and universal. He was drowsy and stupid, though in constant uneasiness, and so could not sleep. He was ordered quinine and steel, with an expectorant and diuretic mixture, with gentian, and full doses of aromatic ammonia.

Nov. 2nd.—The albumen was found to be extreme in quantity, the urine boiling into one solid mass.

On the 9th he was still very ill, and all along up to the 23rd, when he said he felt generally easier. The heart was not then so tumultuous, but he continued blue. The swellings were the same, and the whole urine albuminous.

By the end of the month he was again worse, and felt exceedingly low. He was ordered three grains of quinine thrice a day, and a strong cordial draught of cardamoms and ammonia when required. In this manner he struggled through December, 1863, and also on to the end of February, 1864, when he died under an attack of violent vomiting and purging. There was no abatement throughout either of the swellings or the amount of albumen. No examination of the body was obtained; but there could be no doubt as to the existence of valvular disease, congestion of the lungs, and utter degeneration of the kidneys.

CASE. 7—Mr. T. W——, of Birmingham, a friend of one of the patients already spoken of, was first seen on June 9th, 1864, complaning of extensive anasarca in the integuments of the abdomen, and in the scrotum and legs. He felt excessively weak, was very dry in the skin, and had also a cough, with dyspepsia. The urine was about two-thirds albumen. He was put under quinine and steel; had a peptic mixture, with ipecacuanha and morphia, and had glycerine for the skin. Albuminous diet was enjoyed.

June 16th.—The swellings were still very considerable, and the albumen about the same. He was further ordered pills of podophylin, and colocynth with hyoscyamus.

On June 23rd he stated that the pills had violently griped him, without producing much watery evacuation. He was still swollen, and complained of heavy pains in the loins. A large plaster of opium and belladonna was applied. He continued the tonic, and took, instead of the podophylin, supertartrate of potassa, with jalap and ginger.

By the 30th there had been plentiful evacuations from the bowels, with a very marked reduction of the the swelling, and a diminution of the proportion of albumen to one-half. The drastic purgation was continued, along with the tonic and alterative treatment.

July 14th.—The swellings were entirely gone, and he felt light and easy; but the albumen at this date was still about one-third. He was not, however, seen again. His friend subsequently reported that he left off attendance as his "dropsy had been quite cured," for which he "was very thankful."

CASE 8.—Miss H. R——, of Worcestershire, called on Feb. 13th, 1865, complaining of general debility, and the disappearance of the menses for some months. She had no swellings; her color was good, and no albument could be detected in the urine. The case is mentioned here only because it was one of those extreme instances reported in the paper of 1860. She had at that older date been referred to me by my friend, Mr. Moore, F. R. C. S., of Halesowen, suffering from enormous turgidity of the upper part of the body, of the labia, and of both legs. Her pallor was extreme; her skin was dry, and the catamenia had been absent for a long period. The urine boiled almost to one mass of albumen. She then went through the ferro-albuminous treatment for a considerable time, at the end of which her color was quite restored, the whole of the swellings removed, and the uterine functions put into full activity. It was one of the completest instances of restoration to health that could possibly be shown, so much so, that after some visits, on this last occasion, a strong conviction arose that she was pregnant. This proved to be the fact. She was married some time after to the father of her child, and has had another since then, both these and herself continuing well when I last heard about her.

CASE 9—Miss A. W——, of Wolverhampton, aged about twenty, was first seen on Nov. 16th, 1865. She had black hair, but was excessively pale and puffy. Her face was swollen in the morning. There was much fullness all round about the loins and abdomen. The labia were very turgid, so were the thighs, and the legs enormously so, though with a certain appearance of symmetry, as the feet were free from the swelling, and curiously enough, could be put into a very small boot. She had had no menses for a long time, and felt drowsy, weak, and languid. The urine was almost entirely albumen, and the bowels were costive. She was ordered supertartrate of pottassa, with jalap and ginger occasionally, and was treated with the quinine and steel. Albuminous diet, and frictions of glycerine.

The same plan was pursued through the remainder of the year 1865, and to the end of January, 1866, with very little result beyond a disappearance of the swellings from the body, labia, and thighs; the legs, up to the knees, being still very œdematous, and pitting deeply. She said she felt easier altogether, and stronger than she had been, but the albumen was still two-thirds.

Through February and March there was a very gradual abatement of the swellings in the legs. On April 9th it was noted that they were much less swollen; and the albumen was a little less. On May 7th the swellings had very much decreased, and she felt easy. On June 14th they had quite disappeared; her color was not quite so pallid, and she felt stronger; the albumen had diminished, but was still one-half. About this period she had an opportunity of visiting the seaside watering-place, whither she was to proceed, continuing the employment of the quinine and steel &c., but warned against exposure to cold, either in bathing or otherwise. What occurred there I know not; but I saw her death announced in the papers not very long afterwards. We know that any attack of bronchitis, or the like, occurring in the course of this disease, will often carry the patient off very rapidly; coma being apt to supervene, terminating in death, with a very urinous odor from the body.

CASE 10—Mr. J. W——, near Stourbridge, aged forty, was first seen on March 26th, 1866. He was tall, pale, and puffy, and felt very drowsy. The swellings were very great. His trousers would not meet round his body; the scrotum was turgid; and the thighs, legs and feet were immensely enlarged, so that he could not wear a boot or shoe, but used large slippers. He could not bend his legs or feet, but walked with a heavy rolling gait. The urine coagulated to one mass. He was ordered supertartrate of potassa, with jalap and ginger, every second morning; steel and quinine three times a day, with meals; and an albuminous diet, with peptic alkaline mixture.

On April 2nd he said he had profuse discharges from the bowels, and the swellings were rather less. The albumen had diminished a little. On the 9th the swellings were steadily diminishing, as well as the amount of albumen. On the 16th he reported himself much better. His color had improved, and the swellings and the albumen had still further decreased. On May 7th the swellings had quite gone, and the albumen was only one-fourth.

June 11th.—No swellings had returned. He said he felt well and strong; his color had been restored; and the albumen had fallen to one-tenth. Like some of the others, he considered himself well cured of his dropsy, and discontinued his visits. He was advised, however, to persevere with the use of the steel at meals, and to attend to his diet as he had done. I have since heard from some of his acquaintance that there has been no return of the dropsy at least.

These cases, I conceive, illustrate the amount of benefit to be derived from the treatment, according to the degree of degeneration that exists in the kidney; for I do not think that the mere quantity of albumen in the urine is any very exact criterion of the extent of such organic disease.

**Colmore-row, Birmingham, 1867.**

## ON THE DIAGNOSIS ETC. OF TWO CASES OF CARDIAC DISEASE.

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THE following cases, which were recently under my care at St. Thomas's Hospital at the same time, display several points of interest, connected with the diagnosis, which render them worthy of record.

CASE 1. *Mitral valvular disease, chiefly regurgitant; dropsy; enlarged liver: probably the sequence of rheumatism in early life.*—J. M——, a milkman, aged forty-one, admitted Oct. 4th, 1867. He stated that his family was healthy; his father having lived to upwards of seventy, and his mother to upwards of sixty, and two brothers and a sister—all the family—being alive, and, except the latter, healthy. When fifteen years of age he had an attack of rheumatic fever, from which he suffered for about three months; and he had since been subject at intervals to pain in the limbs, particularly the knees. Somewhat more than three years before his admission he had inflammation of the liver, and was laid by for about six weeks.

His last illness commenced about six months previously, with pain in the right side, followed by shortness of breath and palpitation and uneasiness in the region of the heart. When admitted, he complained chiefly of pain in the lower part of the chest, in each side, and in the loins. He had great difficulty of breathing, and palpitation; the lips were purple, and there was a general icteroid tinging of the skin and conjunctivæ, with œdema of the lower extremities, and some ascites. The liver was found to extend further into the abdomen than it should, and it was hard and tender to the touch. The cardiac dulness was enlarged transversely, but not vertically, extending from the right side of the sternum to near the line of the left nipple; the apex beat over a wide space in the fifth interspace below the nipple, and the impulse was diffused and undulating; the action of the heart was unequal in force, and there was an occasional intermission. A systolic murmur was audible over the whole precordia, but much the most loudly about the seat of pulsation of the apex, and it did not cease abruptly, but gradually died away. It was heard distinctly in a line from the apex towards the left axilla, and, with the more powerful impulses of the heart, at the lower angle of the left scapula. At the base of the heart the murmur was also heard, but it was of a softer character, and shorter; and it was there followed by a distinct second sound. There was also a murmur of a somewhat harsher character heard to the right of the upper part of the sternum. The percussion-sounds over the chest were not impaired; and the respiratory murmur was natural, except being somewhat harsh, especially at the left apex. There was marked pulsation of the carotids, and the external jugular veins were somewhat distended. The pulse at the wrist was small, and of unequal force, though always feeble; and it occasionally intermitted. The urine was scanty, and contained a copious deposit of lithates and a slight trace of albumen.

While he was in the hospital the symptoms continued much the same; but the anasarca increased, the liver became more engorged, and he gradually lost power. He was repeatedly examined without any material difference being observed in the physical signs, except that on the 10th of October the murmur was reported at the apex apparently to accompany the systole, while between the nipple and sternum it seemed slightly to precede it. A decided thrill was felt with the impulse of the heart at the apex.

On the 31st of October the urine, which since it was first examined had been repeatedly tested without displaying any trace of albumen, was reported to be again slightly albuminous, but this was not afterwards observed. At this time also there was found to be some effusion in the right pleural sac; the abdomen was now swollen, and the lower extremities had become very œdematous, but not tense. The jaundiced tinge of the surface was more marked, and his breath had a decided hepatic odor. For the last three weeks he was gradually dying. His face and left arm became thin and emaciated; but the right arm, upon which he lay was somewhat swollen. He died rather suddenly at 8 P.M. on the 24th of November.

The examination took place at 10 A.M. on the 25th; but the heart only was allowed to be opened. There was one large white patch on the anterior surface of the right ventricle, which admitted of being torn off, and left a smooth surface beneath it. There was also considerable opacity and thickening of the pericardium on the surface of the right auricle, and to a less extent on the left auricle and in the course of the vessels on the posterior part of the ventricles. The pericardium on the aorta and pulmonary artery was thickened and opaque, and the two vessels were somewhat closely and firmly united. The heart was generally enlarged, and weighed a day after being removed from the body 19 oz. 14 dr. avoirdupois. The left ventricle was very much dilated, and especially widened and rounded at the apex, and its walls were increased in thickness. The folds of the mitral valve were adherent together, and much thickened and indurated; and one of the cords was entirely separated from the curtain, so that it allowed a large portion of the free fold to be turned back. The ruptured cord was much thickened and hardened, and studded at the broken end with vegetations, forming a thick mass, which projected into the auriculo-ventricular aperture. The other cords were also thick and firm, and the columnæ carneæ were large. The left auriculo-ventricular aperture was smaller than it should be, so that there was both obstruction to the flow of blood into the ventricle and free regurgitation into the auricle. The aortic valves were somewhat thick and opaque, but not apparently incompetent. The cavity of the left auricle was considerably dilated, the lining membrane thick and white, and the muscular walls increased in width. The right ventricle and auricle were also dilated, and somewhat hypertrophied.

This case presents several points of interest, and especially in reference to the diagnosis. The increased dulness on percussion in the transverse direction, and particularly on the right side, with comparatively little extension in the vertical direction; the diffused pulsation of the apex; and the murmur accompanying the systole, dying gradually away, heard all over the precordia, but most loudly below the nipple, propagated towards the left axilla, and audible also at the lower angle of the left scapula,—all indicated that there was regurgitation through the left auriculo-ventricular aperture. No hesitation was therefore felt in giving that diagnosis when the patient was first admitted into the hospital. A systolic murmur was also heard to the right of the upper part of the sternum, which was somewhat different in character from the murmur at the apex; and it was thought that the latter might depend upon the existence of some thickening of the aortic valves. This supposition was the more probable from the cardiac disease being apparently the sequence of rheumatism, and from the frequency with which rheumatic endocarditis, though chiefly affecting one set of valves, involves to a greater or less extent the other. In both these respects it will be observed that the diagnosis was confirmed by the examination.

It proved further that not only was the mitral valve incompetent, but that the capacity of the orifice was considerably diminished. Indeed, the aperture was only capable of allowing of the passage of a ball 30 French lines in circumference (67·5 millimetres, 2·66 English inches); while the ordinary capacity of that orifice is 45·2 lines (101·7 millimetres, or 4 English inches);* and as all the other outlets and the cavities were enlarged, the aperture, to maintain the just proportion, should have been still larger. Were there then, any indications during life of the existence of this condition? On one occasion it was thought that the murmur, as heard between the nipple and the sternum, slightly preceded the systole, but this was not confirmed by subsequent observation, and there was not at any time a distinct presystolic murmur, so that in this respect there was nothing which decidedly indicated the existence of obstruction.

It was, however, noticed that a thrill or "purring tremor" was felt about the seat of pulsation of the apex: and this was regarded as probably due to mitral obstruction. Since the occurrence of the *bruissement* felt by the hand applied over the precordial region was first mentioned by Corvisart† as an indication of valvular disease, practitioners have been familiar with the sign. It is probably generally caused by the powerful contraction of one or other ventricle, forcing the blood through a narrow passage; and is frequently met with in cases of contraction of any of the cardiac apertures. Laennec and Hope speak of it as most commonly felt in cases of mitral disease; but I have myself more frequently detected it in cases of constriction of the aortic and pulmonic orifices, and especially in congenital contraction of the latter aperture. Laennec also says that the thrill does not depend on any constant organic cause; and I have felt it very characteristically in the course of the pulmonary artery in cases in which the obstruction was situated at the left auriculo-ventricular aperture. Generally, however, it occurs in connexion with a constricted orifice, and more or less immediately in the seat of constriction. In cases, therefore, like the present, in which there is a distinct thrill felt and this is very much limited to the apex, we may I believe, conclude that there is some source of obstruction at the mitral orifice; and when the signs of regurgitation are also present, that the case is one of combined obstructive and regurgitant disease. As regards the precise mode in which the tremor in this class of cases is produced, I should agree with Dr. Hope that it is more probable that the retrograde current forced through the orifice with the ventricular contraction gives rise to the vibration than that it originates with comparatively feeble direct current dependent on the auricular contraction.

CASE 2. *Obstructive and regurgitant disease of the aortic valves; aneurism of the ascending aorta pressing upon the base of th right ventricle, and opening into the origin of the pulmonary artery: probably the sequence of acute rheumatism four years before.*—W. S——, aged twenty-six, admitted Oct. 11th, 1867. He stated that his family was healthy, his parents, and grandparents together with all their children, five in number, being, still alive. He had had no serious illness or accident except an attack of rheumatic fever four years before, with which he was laid by for two months. From this however, he perfectly recovered, and continued well till five weeks before his admission. He had lived temperately, and did not know any cause to which his attack could be ascribed. He was first taken with pain in the front of the chest, passing down into the abdomen, and especially extending across the epigastrium and right hypochondrium. This was followed by shortness of breathing and cough, but without any expectoration. About a month after the commencement of these symptoms his stomach began to swell, and a month after that, or about a week before admission, his legs also became swollen.

When he was examined on the 14th his face was rather tumid, the cheeks flushed, and the lips livid; the tongue clean, but morbidly red; the pulse sharp, and of a somewhat regurgitant character, 100 in the minute; the respirations short and abrupt 32. The resonance on percussion of the chest was generally impaired, more particularly on the right side, and the movements also were imperfect. The respiratory sounds on the left side were harsh, and still more so on the right, where also low down there was somewhat fine crepitation. The precordial dull space was very much increased in extent. It commenced at the level of the second cartilage and became entire at the third. Latterly it commenced at the right side of the sternum, and extended to within a finger's breadth of the line of the nipple. The impulse of the heart was perceived over a large space, and the point of pulsation of the apex could not be distinctly marked, but it was apparently in the fifth interspace, in the line of the nipple. The external jugular vein on the right side was distended, and the carotids pulsated visibly. Over the whole precordia a murmur was heard which accompanied the systole. It was most distinct at the level of the fourth cartilage to the left of the sternum where also it was followed by a ringing second sound. To the right of the upper part of the sternum the systolic murmur was distinctly heard, but it was not there very loud, and the ringing second sound was followed by a short soft murmur. At the lower part of the precordial region the systolic murmur was also heard, and was succeeded by the loud diastolic sound, but without the second murmur. The murmur could not be heard at the lower angle of the left scapula. The liver was large, extending a considerable distance into the thorax and abdomen and was very tender to the touch. The abdomen was tumid, and there was some effusion in the cavity. He preferred to lie on the right side, and could not for any length of time lie on the left from the dragging pain so occasioned in the region of the liver. The surface generally was somewhat œdematous, but the lower extremities though tumid, did not pit on pressure. He passed a pint and a half of urine in twenty-four hours. It was of a specific gravity of 1020, and somewhat high-colored, and deposited some pink lithates, but did not contain albumen. He did not improve under the treatment pursued; on the contrary, the dropsical symptoms and difficulty of breathing increased, and the lower extremities became very œdematous and tense, and red on the surface. The abdomen also became very tumid, and latterly there was obvious fluctuation, and there was more marked œdema of the upper parts of the body and of the face and upper extremities. The urine was repeatedly examined, but was never found to contain albumen. He gradually sank, and died exhausted on Nov. 28th, at 7 A.M.

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* Croonian Lectures for 1865, p. 84.

† Sur les Maladies du Cœur. 3me Edit. 1818. p. 240.

The post-mortem examination took place on the following morning. The lungs were much congested, and especially the right lung. The liver was enlarged and mottled. The kidneys were pale-colored, and apparently healthy; the spleen was also healthy. The pericardium was extensively attached by old but not very firm adhesions. The heart was greatly enlarged, and weighed 28 oz. The aortic valves were all somewhat opaque and thick, and the left fold was much thickened and somewhat contracted, so as to allow of free regurgitation. Immediately above the angle of attachment of the right and left folds there was an expansion of the coats of the aorta, involving a considerable portion of the right side and front of that vessel, so as to constitute an aneurismal sac fully the size of a large hen's egg. This protruded into the cavity of the pericardium above, and into the upper part of the infundibular portion of the right ventricle and origin of the pulmonary artery below, so as greatly to obstruct the passage. The portion of the aneurism which projected into the ventricle involved the pulmonary valves, one of which was completely destroyed, and another partially so, the third being entire. At the level of the pulmonic orifice there was a small oval opening into the sac of the aneurism. The left ventricle was greatly hyertrophied and dilated; the mitral valves were thick and opaque; the right cavities were also dilated, and the right ventricle hypertrophied.

In reference to this case there arise several interesting points for consideration. The diagnosis during life was in the main confirmed by the results of post-mortem examination. It was inferred from the alteration in the form and the extension of the dulness on percussion, its increase in the vertical without proportionate enlargement in the transverse direction, and especially from its not extending very far to the left; from the existence of a murmur with the systole, propagated along the right side of the upper part of the sternum, and followed by a slight diastolic murmur; and from the visible beat of the arteries and the regurgitant character of the pulse, that there was obstruction and slight regurgitation at the aortic orifice. This inference proved correct. It was further supposed from the loud ringing sound heard with the diastole, about the level of the third cartilage, and on the left of the sternum, that there was considerable increase in the capacity of the pulmonary artery, and consequent more powerful reaction on the valves. This conclusion was not, however, confirmed by the examination. On the contrary, though the pulmonic orifice after death, when empty, was nearly as large as it should have been (39 French lines),* during life, when the aneurismal sac was filled with blood, the aperture must have been very greatly obstructed. One of the valves also was entirely destroyed, and a second was very imperfect; so that they could not have been concerned in the production of the sound. It must, therefore, have been due to the sudden tension of the walls of the aneurism during the dilatation of the right ventricle. It had also been supposed from the diastolic murmur being only feeble and following the second sound, that there was probably not much regurgitation at the aortic orifice; that the valves admitted of being closed, but that one of the segments afterwards became retroverted, or did not entirely adjust itself to the others, so as to allow a small current of blood to flow through. This conclusion also was not entirely correct. The right and posterior segments were not materially diseased, but the left valve was much thickened and somewhat shortened, and was obviously incompetent. I should doubt whether either the defective state of the pulmonic valves or the aperture in the aneurismal sac was materially concerned in the production of the diastolic murmur. The aneurism bulged so much into the infundibular portion of the right ventricle and the pulmonic orifice, that it must have very much closed the passage during the diastole, when the sac would be most distended. The aperture in the sac was also situated above the part at which the aneurism advanced most into the cavity. It is probable that the opening between the aneurism and the pulmonary orifice only occurred shortly before death, though there was no sudden change in the patient's condition to indicate its occurrence. The sides of the opening are, however, very thin and smooth, as if produced by the gradual expansion of the walls of the sac; and there are no vegetations on its edges, as would have almost certainly been found had a current of blood flowed through it for any considerable length of time. The systolic murmur was doubtless not alone caused by the state of the left aortic valve, but must have been also due in part to the flow of the blood into the aneurism across its somewhat projecting lower edge and over the rough surface of the sac. It seems doubtful whether the tumour in the right ventricle and pulmonic orifice materially conduced to the murmur, as the sound was not propagated in the course of the pulmonary artery. The obstruction to the exit of the blood from the right ventricle constituted a material feature of the case, and doubtless gave rise to several symptoms which had been regarded as anomalous during life: the lividity of the face and extremities, to a greater extent than ordinarily occurs in aortic valvular disease uncomplicated by serious pulmonary congestion; the distension of the jugular veins; the early appearance of dropsy, and the presence of the effusion in the cellular tissue of the face and upper extremities to almost as great an extent as over the abdomen and lower extremities; and the attacks of orthopnœa. Indeed the case combined the features of one of obstructive and regurgitant disease of the aortic orifice with those of mitral disease, to an extent which, during life, was not explicable by the physical signs. Taken altogether, the diagnosis was probably as complete as the features of the case admitted; though, with the heart before us, we can readily understand peculiarities which had been noticed during life, and for which no adequate reasons could then be assigned.

I have not much to say in reference to the treatment adopted in these cases. The endeavor was made in both to relieve the congestion of the venous system and remove the dropsical symptoms by the use of diuretics and aperients, the patient's strength being at the same time upheld by a nourishing diet and by stimulants.

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* The orifice of the aorta admitted a ball measuring 42 French lines, and the pulmonic one measuring 39 French lines—and the pulmonic ordinarily exceeds in capacity the aortic orifice; so that the pulmonic aperture was disproportionately small.

In the first case, in consequence of the great engorgement of the liver, mercurial and purgative remedies were had recourse to more freely, but without any decided advantage; and as for the last fortnight or three weeks the fatal event was obviously impending, the use of medicines was not pressed, and the patient took very little.

In the second case I deviated from what has generally been my practice in cases where there is any incompetency of the aortic valves, and prescribed small doses of digitalis. This remedy I regard as of advantage in cases of cardiac disease, generally only as a diuretic; and therefore as especially applicable for the relief of congestion and dropsy, or in cases of mitral regurgitation more particularly. I have never been able to see the tonic effect which it is said by some medical men to exercise over the muscular structure of the heart. On the contrary, I regard it as exercising a depressing effect—certainly if it be continued for any length of time. As, therefore, in cases of incompetency of the aortic valves, the danger is generally from failure of the power of the left ventricle, and the hope of the prolongation of life and alleviation of the sufferings of the patient depend on the maintenance of the heart's action, I have formerly regarded digitalis as inapplicable in such cases, and my views on these points have been based on my personal experience. In this case, however, I was led to order digitalis from the extreme amount of dropsy, and under the impression that the regurgitation was not to any great extent. The patient did not, however, derive any benefit from the treatment; on the contrary, the dropsical symptoms increased, and the lower extremities became very tense and brawny, and the surface red, threatening to slough or burst. Punctures were therefore made in the limbs, at first with a common sewing needle, and afterwards, as there was little dripping from the punctures, with an acupuncture needle. The punctures were first made immediately below the knee on each side of the limbs, and they were afterwards repeated lower down. A large quantity of serum was thus evacuated, the tension of the limbs was lessened, the general redness diminished, and more serious affection of the integument was probably prevented, though there was some inflammation around the punctures. I am always unwilling to have recourse to any means of letting out the fluid in these cases, and usually defer the punctures as long as possible. After puncturing, however practised, the skin will sometimes slough; but I have often seen the evil prevented for a time in this way, and sometimes have known the integument resume its healthy condition after the swelling of the limb has been relieved. That this result does not more frequently ensue is probably owing to the late period at which the punctures are made.

Finsbury-circus, Feb. 1868.

# ON POISONING BY COLOCYNTH (CUCUMIS COLOCYNTHIS).

By Chas. Meymott Tidy, M.B.,

Joint Lecturer on Chemistry at the London Hospital.

Mrs. P——, a young married woman, had all her life enjoyed fair health. She had however, a slight cold, and had passed nearly a fortnight over her usual monthly period. Talking with her landlady and another friend, she asked them what was a good thing to take, upon which her friend remarked she had heard bitter apple recommended. This was on the afternoon of the 5th of November. She then took threepence out of her pocket, and asked her friend to purchase some for her, which she did, at a neighboring chemist's. She brought it home and gave it to her. When she took the drug it is impossible to say, as there was no evidence on this point. The following day, however, she was seized with vomiting and violent purging, which never ceased until her death, which occurred on the afternoon of the 7th of November.

Some days after death Dr. Godfrey made an examination of the body. He reports that the viscera were healthy; the right side of the heart was full, the left empty. The brain and intestines were not examined.

On the 17th of November I received the uterus and the stomach with its contents. The uterus was unimpregnated and healthy, though at the same time I should state it was a little more congested than usual. There was no appearance of any inflammation in the stomach; indeed it was somewhat preternaturally pale. It contained about sixteen ounces of a light yellow fluid which smelt of digesting matter, and had an acid reaction. I allowed the sediment to collect, and examined it under the microscope, but failed to discover any substance having the structure of the bitter apple. I endeavored then to see if I could detect the presence of the bitter principle by extraction with alcohol, but was again unsuccessful. I did not discover any poison in the contents.

Colocynth is imported in the form of a dried fruit, about the size of an orange; but is usually sold by the chemists as a powder, having a yellowish-white color. There was some difficulty in determining the quantity that was actually procured for threepence; but after purchasing it at various chemists, I find somewhere between two and three drachms is usually sold for that sum. It is right, however, to state that at the inquest the chemist who is said to have sold it asserted that he never gave more than a drachm for threepence.

I now made a careful investigation into the effects of the poison on the lower animals. The first thing, however, was to find out the smallest quantity of the powdered colocynth that could be detected in organic liquids, and I found that one grain was easily discoverable in ten ounces of fluid. Two drachms of the powdered colocynth given to a small dog produced considerable vomiting and purging; but the animal soon recovered, and in two days was as well as ever. Three drachms and a half was, I found, the smallest quantity that will prove fatal to a dog, in one case in eighteen hours, in another twenty-two, in a third thirty-six hours, and even this quantity occasionally fails to kill. In one case a dog recovered after taking six drachms. The following were the results obtained:—

| | | | | |
|---|---|---|---|---|
| Experiment | 1. | Gave a dog | 1 ounce | ... Died in 5 hours. |
| ,, | 2. | ,, | 6 drachms | ... ,, 8 ,, |
| ,, | 3. | ,, | Ditto | ... ,, 9 ,, |
| ,, | 4. | ,, | Ditto | ... Recovered. |
| ,, | 5. | ,, | 3½ drachms | ... Died in 18 ,, |
| ,, | 6. | ,, | Ditto | ... ,, 22 ,, |
| ,, | 7. | ,, | Ditto | ... Recovered. |
| ,, | 8. | ,, | 3½ drachms | ... Died in 36 ,, |
| ,, | 9. | ,, | 3 drachms | ... Recovered. |
| ,, | 10. | ,, | Ditto | ... Ditto. |
| ,, | 11. | ,, | Ditto | ... Ditto. |
| ,, | 12. | ,, | 2½ drachms | ... Ditto. |
| ,, | 13. | ,, | Ditto | ... Ditto. |

These experiments closely agree with the cases on record. Orfila relates the case of a man who took three ounces of the powdered colocynth for a gonorrhœa, and recovered. Christison relates a case of a woman who died in twenty-four hours, after swallowing a teaspoonful and a half. Now, in my experiments, where death occurred before twenty hours after taking the poison, the colocynth was easily detected, both chemically and by the microscope; but I failed to discover the drug in those cases that proved fatal after a longer period. Generalising upon these facts, we cannot help noticing the uncertain action of colocynth as a poison. It is of course nothing very strange that large doses of a poison should fail to kill where small doses succeed. In the case of this woman, allowing that colocynth was the cause of death, the dose probably did not exceed three drachms; and, according to the chemist who sold it, only one drachm, the smallest quantity I believe on record that has produced a fatal result.

The symptoms in animals as a rule come on after some short time; somewhere between one and three hours, varying with the dose given. Vomiting generally occurs first, and diarrhœa follows rapidly upon it. There is evidently in most cases severe pain, like colic, the pupils are in all cases contracted, a considerable quantity of blood is passed, and I was able in all cases to detect colocynth in the evacuations. Occasionally I noticed giddiness and extreme languor, but in no case anything like convulsions.

The post-mortem appearances are variable in the extreme. As a rule, the stomach and intestinal canal are highly congested, large ulcers being occasionally met with in the stomach. In some cases, however, the appearances were quite the reverse of this, the stomach and intestines being paler than usual, with this exception, that in every case the rectum was violently inflamed. The other viscera as a rule were healthy, though occasionally I found traces of inflammation in the kidneys and bladder.

Once again returning to the case that led me to make these experiments, and has suggested these remarks. From all accounts, she could not have died within forty hours after taking the colocynth. I do not regard, therefore, failing to find the poison as a proof that death did not result from it, although, of course, failing to find it, I was unable at the inquest to speak positively one way or the other. The vomiting and violent purging, the bloody stools noticed by Dr. Godfrey, the pale stomach which I have already referred to as not unusual, the previous good health of the woman, and the certain evidence that the drug had been bought, and she herself ascribing her illness to having taken it, are facts which to my mind leave no question as to the immediate cause of death.

**Cambridge-heath, Hackney, Dec. 9th, 1867.**

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### A CASE OF

# CÆSAREAN OPERATION SUCCESSFUL TO BOTH MOTHER AND CHILD.

OCCURRING IN THE PRACTICE OF

JOHN TAYLOR, M.D., M.R.C.P. Lond.

On the 28th of December, 1867, at noon, I was called to see Mrs. H——, living in Pickering-place, W., the wife of a porter to a confectioner in the neighborhood. She was twenty-three years of age, at the full period of her first pregnancy, and had been in pain of an intermitting character from twelve o'clock on the preceding night. On examination per vaginam, the finger came in contact with the body of the sacrum, about two inches from the arch of the pubes; and, on turning the finger upwards and forwards, the promontory of the sacrum was felt, arching forwards to within one inch and a quarter of the pubes. The whole of its surface was very tender to the touch. The os uteri could just be reached, hanging over the contracted pelvic brim like a nipple, though absolutely unaffected during the uterine contractions, which could be felt through the abdominal walls at regular periods of ten minutes. On an external view of the abdomen, the uterus occupied an oblique position, and, in the intervals of pain, the child's head could be distinctly felt hanging over the left groin, and the nates as distinctly observed in the right hypochondrium. The sacrum behind joined the lumbar vertebræ at an angle of 45 degrees. On finding this abnormal condition, I called on Mr. Baker Brown, who immediately visited her at two P.M., and confirmed my diagnosis; and was of opinion that nothing but the Cæsarean operation could save either mother or child. Having explained the circumstances to the patient and her husband, and by their full concurrence, I at once removed her to the "London Surgical Home," where Mr. Brown, assisted by Drs. Holt Dunn, Hubbard, Watts, Mr. Strange, and myself (all of whom examined the patient under chloroform previous to the operation, and confirmed the opinion as to the state of the pelvis, and as to the absolute necessity of the operation) at once operated, quickly removing a healthy female child, weighing seven and a half pounds. The uterus was closed by silver sutures, and the abdomen also by the same means. The whole operation was performed in less than five minutes.

A low form of general peritonitis ensued, vomiting occurring incessantly until the fourth day, when a severe attack of sickness caused one of the abdominal sutures to give way, and a quantity of very acrid peritoneal fluid escaped through the incision; a knuckle of intestine also protruded and was replaced. The inflammatory symptoms subsided forthwith, and the patient is now convalescent. The child progresses very favorably, is fed on milk and water, and appears none the worse for its unnatural mode of birth.

**Queen's road, Bayswater, Jan. 13th, 1868.**

### ON THE CASES OF

## YELLOW FEVER OCCURRING ON BOARD THE S.S. "NARVA" DURING THE CUBA AND FLORIDA CABLE EXPEDITION.

By Andrew Dunlop, M.D.,
Surgeon to the Expedition.

The following five cases of yellow fever have been selected from amongst those which occured on board the *Narva*, as they exemplify the different forms which the disease assumed.

J. W. W——, aged forty-two, a negro, cable hand, came under treatment for slight febricula in the end of July, during the passage out, and had an attack of diarrhœa in the beginning of August, while the Cuba cable was being laid.

On August 23rd he was seized with vertigo, headache, and sickness. The attack was so sudden and severe that he fell down, and narrowly escaped being precipitated into the hold. I saw him a few minutes afterwards, and found him in the following condition:—Severe headache; vertigo, pain in the loins and limbs; pulse 112; skin hot and dry; conjunctivæ injected: tongue covered with white fur; frequent vomiting of viscid mucous matter, containing half-digested food; great pain in the epigastrium, increased on pressure; bowels loose. Ordered a saline mixture, and sinapisms to epigastrium and loins.

Aug. 24th.—Much in the same condition; all nutrients rejected by the stomach.

25th.—Complete defervescence; pulse 64, regular, of fair strength; skin cool; vomition less frequent, and he can now retain beef-tea and wine given in small quantities; epigastric pain persistent; headache easier; feels very weak.

26th—Pulse 60, regular, weak; skin cool: no vomiting to-day, but still severe pain in epigastrium; a loose stool at 7 A.M.

27th.—Called to see him at 3 A.M. and found him suffering from severe pain in abdomen, which was exquisitely tender on pressure; pulse feeble, and countenance anxious. Died at 5.30 A.M. Had vomited during the night, but the vomited matter had been thrown overboard by the attendant, so that it was impossible to ascertain its nature.

This was the first case that occured, and it is curious that a negro should have been the earliest victim of a disease to which they are, as a race, so little liable. He had lived long in England, however, and was, in all probability, so rendered more susceptible to its influence.

J. H——, aged seventeen, cooks mate, attacked Aug. 24th. During the passage out, had frequently suffered from digestive derangements, accompanied with slight feverishness. Had an attack of diarrhœa early in August.

Like the negro, the attack was sudden. When called to him, I found him rolling about on deck, and crying out, "Oh, my head, my head!" Pulse 100, weak; tongue furred; no vomiting; pain, increased by pressure, in epigastrium; bowels regular: skin hot and dry; conjunctivæ injected. Ordered a saline mixture, mustard plaster to epigastrium, and cold applications to head.

Aug. 25th.—Headache better, but intellect slightly obscured; vomited several times during the night: seems weaker. Ordered three ounces of brandy.

26th.—Pulse 108, weaker; sordes on the lips and teeth: a band of brown fur down centre of tongue.—Evening: Normal (?) stool this afternoon; pulse 100; urine passed in diminished quantity.

27th.—Pulse 100. During last night had five loose stools, containing a good deal of mucus. Vomited mucous matter twice this morning; nutrients mostly vomited. Ordered champagne and ice.—Evening: Black vomit at 12.30 to-day; stomach very irritable; during the evening had two attacks of epistaxis.

28th.—Pulse 80, weak; skin cool, but dry; two loose stools during the night; slept a good deal, but his mind wandered whenever he awoke; epistaxis at 8 A.M.—Evening: During the day has had five loose stools and black vomit twice. The first three stools exactly resembled the vomit; the last two were slimy, and of a greenish color. Passed urine twice. Epistaxis almost constant, and blood oozing from gums. At 1 P.M. sudden prostration set in, his pulse becoming almost imperceptible, and his face assuming the Hippocratic expression. An hour afterwards he had rallied a little, but at 7 P.M. he became very restless, his breathing became sighing and laborious, and at 9 P.M. he died. No yellowness of conjunctivæ, nor of any part of the surface of the body.

W. E——, aged forty, cable hand, of delicate constitution. Suffered greatly from prickly heat, and successive crops of boils after coming into warm latitudes. Had diarrhœa in the beginning of August. On the 25th of August he was suddenly seized with vertigo, headache, and nausea while at work. I saw him at eight P.M., when I found that in addition to these symptoms he was suffering from pain in the epigastrium, loins and limbs. Pulse 108; slight cough; tongue furred; no vomiting, bowels regular; skin hot and dry; conjunctivæ injected.

Aug. 26th.—Pulse 108. Slight delirium during last night; one loose stool this morning. Evening: Pulse 100; complains of the cough; subcrepitant râles and harsh respiration at right base; percussion normal all over chest; vomited about a pint of brownish liquid this afternoon.

27th.—Conjunctivæ and whole surface of a yellowish tint; anxious expression of countenance; pain at epigastrium still severe; frequent copious vomiting of dark-brown liquid; cough has increased, and is now accompanied by brick-dust colored expectoration; intellect clouded; pulse 116; violent throbbing of carotids; gradually got worse, the respiration becoming more and more laborious, until death occured at 11.20 A.M.

This case was treated in much the same way as were the other two,

J. W——, aged forty (?), second mate. Suffered from headache for about ten days previous to the attack. On the evening of the 12th September he had a rigor, followed by increase of headache, vertigo, and frequent and copious vomiting. I saw him shortly afterwards, and found his pulse 112, his skin hot and dry, his conjunctiva injected, his countenance anxious, and his tongue covered with a white fur; there was pain in the epigastrium, increased on pressure; the vomiting was frequent; his bowels were constipated. There was rather severe pain in the loins, and a general feeling of soreness in the limbs. Ordered two compound rhubarb pills immediately, and a saline draught every four hours; the whole body to be sponged with tepid water; sinapisms to epigastrium and loins.

Sept. 13th.—Easier. Vomiting ceased; pain in the loins gone. Less pain in the epigastrium, but the stomach still irritable. Bowels still inactive. Pulse 100; skin cooler, Repeat pill. Sherry, six ounces.

14th.—Bowels acted thrice to-day. Dark-brown fur down centre of tongue. Pulse 92, weak.

16th.—Very weak. Frequent mucous stools, accompanied by tenesmus. Can now retain most of the beef-tea and stimulants given him. Epigastric pain almost entirely gone.

18th.—Epigastric pain gone. Appetite improving. Bowels regular. During yesterday and today there has been slight bleeding from the gums. Sat up for ten minutes to-day.

20th.—Improving, but still very weak. Bowels rather confined. Sits up for a quarter of an hour, morning and afternoon.

30th.—Discharged fit for duty.

Fortunately for himself, Mr. W—— was the most manageable patient we had; he was entirely free from that peculier restlessness which was common to all the others.

P. C——, aged twenty-one, electrical engineer. Attacked on the 17th of September. Suffered from dyspepsia for about ten days before the attack. On Sept. 13th he went ashore at Havanna for about an hour, and returned to the ship at about 5 P.M., getting thoroughly wet on the way off. On coming aboard he complained of feeling sick, but took a good dinner afterwards. The following day he was ashore from 9 A.M. till 4 P.M., walking about nearly the whole of the time. In the evening he complained of severe headache, which passed off after a goods night's rest. On the 15th he made no complaint. But on the morning of the 16th he had a rigor; and when I saw him at 6 A.M. his pulse was 100, his skin was hot and dry, and his tongue was thickly covered with a yellowish-white fur. There was no headache. He had nausea, but no vomiting, nor was there any epigastric pain or tenderness. Bowels constipated, pain in the loins, and aching pains in the limbs. Ordered two compound rhubarb pills immediately, an effervescing saline mixture, and tepid sponging.

Sept. 17th.—The pills acted twice. Perspired a good deal during the latter part of yesterday. Great disgust at all sorts of food, the smallest quantity causing nausea. Complained of pains in the loins this morning. A sinapism was applied, which was followed by relief. Passes his urine in large amount. It is of a smoky color, and has a strong peculiar odor. Other symptoms unaltered. To have three ounces of brandy.

18th.—Complete defervescence. Skin cool, but dry; pulse 60, irregular and intermittent; tongue and lips covered with aphthæ. He vomited once this morning after taking some tea. Frequent scanty mucous stools, accompanied with tenesmus. Occasional sighing respiration. Champagne was ordered, but he could not take it; it was "too sweet." To have four grains of sulphate of quinine every four hours.

19th.—Pulse 76, intermittent. Very restless. Other symptoms unaltered.

20th.—Slight delirium during last night. Great restlessness, constantly getting out of bed if not watched. Intellect obscured. Pulse 76, regular but weak.—At 9 P.M. he complained of severe pain in the epigastrium, and an hour afterwards vomited about two pints of dark-brown liquid. Slight epistaxis during the day. Bowels confined; urine scanty.

21st.—Delirious during last night; urine suppressed; œdema of lower eyelids; pulse 100, thready; skin hot and dry; conjunctivæ and whole surface of a yellow tinge; no vomiting to-day; became delirious toward evening.

22nd.—Black vomit at 2.20 A.M., again at 3 A.M. Died at 3.10.

The *Narva* left Greenhithe on the 27th of June, having on board five engineers connected with the cable, five officers, four engineers, nine seamen, nine firemen, and nineteen cable hands, besides the carpenter, cook, steward, &c., making a total of sixty souls. She arrived at Havanna on the 26th of July, with all on board well; and as the yellow fever was unusually prevalent, she was not taken into harbor, nor was anyone allowed to land; but after taking on board some gentlemen connected with the enterprise, we sailed for Key West, where we arrived early the following morning. At the time of our arrival in the latter place there was, I believe, little fever there; but the cases kept increasing in number, until at last the inhabitants admitted that the disease was more severe this summer than it had been for several years past. We left Key West, and commenced to lay the Cuba cable on the 3rd of August, and it was about this time that sickness first began to appear amongst us, principally in the form of short, but sometimes severe, attacks of febricula. About the middle of the month nearly every one of the cable hands and one or two of the crew suffered from diarrhœa. On investigation, the cause of the outbreak was found to be twofold—first, the water in the cable tanks, which were immediately beneath and opening into the sleeping place of the cable hands, was found to be foul, and giving off sulphuretted hydrogen; and secondly, the beer served out to these men was becoming sour. Fresh water was pumped into the tanks, grog was served out instead of beer, and the epidemic disappeared. On the 11th of August we returned to Key West, and lay alongside the wharf until the 14th, when we went to sea again. On the 19th we returned once more, and remained until the 21st, when we left to lay the Florida cable. We arrived at Punta Rassa, where our first death occured on the 24th, and returned to Key West on September 1st. We stayed there until the 12th, when we ran over to Havanna, and took in a hundred tons of coal outside the harbor. We came back on the 15th, and finally sailed for New York on the 17th.

From the 23rd of August until 23rd of September we had 23 cases of yellow fever; of these, 14 died. 11 cases were sent ashore at Key West to be placed under treatment at the hospital or elsewhere, or were taken ill while ashore; of these, 8 died. 11 cases were treated entirely on board ship; of these, 5 died. Besides these cases of yellow fever, nearly everyone on board suffered from febricula, or some disorder of the digestive system, due to the influence of the climate.

The introduction of the fever amongst us could not be traced to any infectious origin; it evidently arose from our coming under the local or endemic influence of the disease. It was chiefly those who were most called upon to be ashore in the island who suffered, and many of the cases were distinctly traceable to evening or night-work ashore, or day-work on the beach, or in shallow water while laying the shore ends. The greatest mortality was consequently amongst the cable hands and cable engineers. Of the nineteen cable hands fourteen had the yellow fever, and ten died. Of the five electrical engineers three were ill (two with yellow fever, and one whose case was doubtful, and two died. Only two of the crew had yellow fever, and one of them died. It was curious that with the exception of the second (ship's) engineer, the disease attacked every one in the steerage—viz., the chief officer, the chief engineer (of the ship), the second mate, and the third and fourth engineers. The chief engineer was the only one of them who died. It was several times suggested that the cable hands were more susceptible to the disease on account of their being less accustomed to work in tropical climates than the crew. But this could not have been the case, as they had, almost without exception, either been sailors or previously engaged in similar work.

Whether yellow fever is contagious or non-contagious has been much disputed; and although a belief in its *personally* non-contagious nature is gaining ground, the contrary opinion is still wide-spread.[*] Certainly, as it appeared aboard the *Narva*, the disease was not contagious. Many on board were most assiduous in their attention to the sick, but in only one instance was this followed by the illness of the attendant, and in this case the man had been ashore for about ten days nursing his sick messmates in hospital; and as he very frequently walked out, especially in the evening, he was fully exposed to the endemic influence of the malady. The same observation has been repeatedly made in epidemics of yellow fever.

The preventive means employed on board were, the administration of two grains of sulphate of quinine with a glass of spirits thrice daily to the whole ships company, and the use of fumigation and disinfectants.

It had been originally intended to take in coal and cargo at Havanna when the work was finished, and proceed direct to England. This would have involved a detention of at least four or five days in the harbor (a hotbed of fever) at Havanna, and a passage during three-fourths of which we should, in all probability, have experienced warm weather. But the vital importance of reaching a colder climate as speedily as possible became sufficiently obvious some time before we could leave Key West; and accordingly, as soon as the whole cable was laid and the final tests made, we ran over to Havana and took in a hundred tons of coal outside the harbor; then returning to Key west for some of our number whom we had left there, we sailed for New York. When we passed out of the Gulf Stream, on the 21st, the thermometer fell about fifteen degrees; and when we reached New York, on the 23rd, the temperature was thirty degrees lower than it was at Key West when we left. The effect of this on the health of the ship was striking. Cases had been occuring daily up to the 17th, when we left; the third engineer was attacked on the 18th; but after this, with the exception of one or two trifling cases of febricula, no illness of any kind took place on board.

The treatment I adopted of course varied according to the nature of the case, but it usually consisted in the administration of salines, nutrients, and stimulants, with the employment of tepid sponging, and the application of sinapisms to epigastrium and loins. In Key West the routine practice is to give a large dose of calomel—from twenty to fifty grains—at the outset, and to follow this up with castor oil. As I was extremely doubtful of the utility of this practice, I was averse to adopt it, and only tried it in one case, in which certainly the result did not encourage me to persevere.

St. Helier's, Jersey, Jan. 1868.

## ON THE TREATMENT OF POISONING BY THE COBRA.

By Peter Hood, M.D.

Before I venture to enter on the consideration of the cause of death, and *modus operandi* of the poison, occurring from the bite of the cobra di capello, communications on which subject are invited by Dr. Shortt, of India, I will relate a case of a man who was bitten by a cobra some years ago, and whose recovery took place by the adoption of the following treatment: A horse-keeper in the service of the late Dr. Spilsbury, Physician-General of Calcutta, was bitten by a cobra. Dr. Spilsbury at the time was stationed at Jubulpoor in Central India. The Docter, on being informed of the accident, instantly ordered his horse to be harnessed and put to his buggy. He directed that the man's hands should be tied to the back of the gig; and when this was done, he mounted it, and drove the horse steadily for a distance of several miles, the man running behind. On arriving at Jubulpoor the man's body was bathed in the most profuse perspiration, and he was almost powerless from excessive fatigue. Dr. Spilsbury then administered repeated doses, at regular intervals, of eau de luce, keeping the man in constant gentle exercise. After a few hours he was out of all danger, and recovered from the bite.

This man's life was doubtless saved by maintaining, by *continuous* and *forced* exercise the action of his heart and lungs, and thus preventing the paralysing influence of the poison upon those organs, and, at the same time, causing his skin to act so profusely as to make it the eliminating channel for discharging the poison from his system.

When a person has been bitten by a cobra, the first action of the poison appears to be on the great nervous centres of the body, the poison being immediately conveyed to them through the blood. This is rapidly shown by its paralysing influence on those organs which are supplied with nervous power from these sources.

The muscular power of the heart, and the muscles of respiration, speedily become paralysed, most probably through the influence of the par vagum and great sympathetic nerves. This muscular paralysis of the heart prevents it from propelling the blood through the lungs, and a rapid stagnation of the blood takes place, not only in the larger vessels of the body, but throughout the entire capillary system, which is seen by the sudden œdema or swelling, that takes place, more especially in the bitten part.

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[*] *Vide* Wood's Practical Physic, vol. i., p. 326 *et seq.*

The breathing quickly becomes slow and labored and this failure of the respiration causes the blood to be insufficiently decarbonised, owing to the proper amount of oxygen not being received into the system.

The effe t of the poison on the brain keeps pace with these symptoms, for drowsiness followed by coma supervenes, and the patient has all the appearance of one who has taken a large dose of opium. In fact, the history of the symptoms, and the course of the malady, is a striking instance corroborative of Dr. Bence Jones's theory of disease,—namely, that of a chemical agent or poison producing a mechanical disease. It is in vain, therefore, if I am correct in this pathological view, to seek for any medicine that would act as a specific for the cure of a bite from a cobra; for I doubt not every description of drug has been tried, and found to fail, the poison being far too rapidly absorbed into the system to admit of a hope of finding an antidote for it.

This objection, however, I venture to think, does not deprive us of using *mechanical* means to overcome the consequences produced by the poison; and I am of opinion that it is only by use of such means that successful treatment can be looked for. So long as we can maintain the action of the heart and lungs, the patient *cannot die*. It is on this principle that the natives of India act to this day, for they are thoroughly aware of the vast importance of keeping a person who has been bitten by a cobra in constant motion, and even enforce the practice of it by beating the patient with sticks, similar, indeed, to our own treatment of a patient who is narcotised.

An Indian officer recently informed me that he has seen numerous cases of persons who had been bitten by cobras—most of them died, but those who were saved were so by the adoption at the *earliest possible period* of enforced violent muscular exercise, and repeated doses of eau de luce.

My object in writing this paper is to give publicity to the sound and practical method pursued by Dr. Spilsbury in the treatment of his horse-keeper, and to suggest that some means be devised—failing a horse and carriage, which is not at all times to be procured—*to keep the man in exercise independent of his will*, or the enforcement of it by others which can only be done effectually by the invention of some mechanical contrivance on the same principle as our treadmill, or, more simple still, an adaptation of one of these machines we see at fairs, called round-abouts.

The value of excessive exercise in warding off the fatal consequences resulting from the bite of a cobra might be tested by an experiment made upon a dog, when Dr. Shortt sends his promised box of these reptiles to this country.

Let a dog be bitten by a cobra and tied instantly behind a carriage; let the driver proceed on his journey until he observes that the dog appears no longer able to run. Then let him administer, every ten or fifteen minutes, from five to ten drops of eau de luce, in some bland fluid, as milk, or soup, and persevere with this treatment so long as it may appear requisite; judging of the effects of the treatment by the condition of the dog's symptoms. If the dog breathes freely, and shows no disposition to stupor, however exhausted he may be from his exercise, the symptoms may be considered favorable; but, if he manifests these symptoms, the exercise should be repeated until perfect freedom of the heart and lungs is obtained. The dog, however, may make objection to swallow his medicine, and great care should be observed in drenching him with it, as very slight pressure on the windpipe will destroy a dog. There is danger also in forcing any of the eau de luce into the trachea, which might occasion suffocation. The best way would be to add the minimum dose, five drops, to a sufficient quantity of milk, so as to overcome the pungency of the taste as much as possible, and allow the dog to lap it. Another dog of equal size and weight should be bitten by the cobra at the same time. This animal might, or might not, be subjected to medical treatment; but, as all medicine is, *per se*, declared to be useless, the value of the experiment, by leaving the dog alone, would be increased by the knowledge that drugs were not instrumental in hastening its end.

No deductions derived from experiments performed on animals can be considered as *perfect* in their application to man, from the wide difference existing between them; but some information may be elicted that may throw light on this most interesting subject of treatment.

As we cannot test the efficacy of this experiment in this country on man, although it might easily be done in India, when a person is bitten by a cobra, by subjecting him to this mode of treatment, we must rest content by judging as approximately as we can of the effects of it as witnessed on a dog: although this animal is not, perhaps, the best adapted for the experiment, as one important element of elimination—namely, the skin—does not afford relief to the system.

It may be interesting to record a circumstance which occured eighteen months ago, illustrative of the importance attached to *exercise* for the cure of hydrophobia by a blacksmith who has the reputation of being able to cure this disease.

A gardner of mine in the country had two dogs, which he kept on my premises, one of which, a spanial bitch, he was extremly fond of. Both these animals were bitten during the night by a mad dog; the spaniel most severely so. When the fact was ascertained in the morning, he was desired to destroy both these dogs. He was most unwilling to comply to this order; but as it was imperative, he was compelled to obey. Before shooting the spaniel he took her up in his arms and kissed her; the dog licked his face. No sooner had she done this than the idea instantly occurred to him that she had given him hydrophobia. His agony of mind soon became intense. He knew of a blacksmith, who lived two miles off, who was believed to be able to cure any one who had been bitten by a mad dog, and he started off with my coachman to consult this man. The blacksmith's advice was given in these words:—"You must start off directly and walk twenty miles as fast as you can; and in the meantime I will make up some medicine for you which you must call for in the evening." My coachman, though not much used to walking, kindly accompanied this man, and they performed the distance, both suffering from extreme fatigue, and copious perspiration. The man diligently complied with all the directions given by the blacksmith, and took his medicine faithfully, which tasted like broom-tea. He never had any symptom of hydrophobia, as he was never bitten, and there was no broken skin on his face through which the poison contained in the dog's saliva could have been absorbed, even had the dog at the time been hydrophobic. This man's mind, however, was so possessed with the idea that he had got hydrophobia, that, notwithstanding Dr. Forbes Winslow's kindness in seeing him and reasoning with him on the groundlessness of his fears, the idea haunted him for months, and it was long before he recovered from the injury inflicted on his health, and regained the equability of his mind.

I record this incident, not because it proves that excessive exercise will cure hydrophobia, which is one of the most distressing maladies the human body is subject to, but for the purpose of drawing attention to the coincident method of treatment adopted by a gentleman like the late Dr. Spilsbury, who possessed high scientific attainments and great professional skill, and that of an unlettered blacksmith, both of whom relied upon excessive muscular exertion as the chief means of cure,—the one for the bite of the cobra and the other for the bite of a mad dog.

The blacksmith's skill in his immediate neighborhood is firmly relied upon. There may be some truth in his power to cure hydrophobia, but I am unable to bear testimony to it; and as the subject is one of extreme interest, I will make inquiries on the first opportunity, and learn, if I can, how much of trust attaches to what it is *said* he is able to accomplish.

It is true that the pathological condition of a patient suffering from hydrophobia differs very materially from one laboring under the bite of a cobra; but it would seem, if there is any truth in the following incidents which I will relate, that violent and profuse action of the skin appears to be the most rational method to adopt for the cure of this disease, all internal and external remedies having as yet been found powerless.

Captain Maxwell, in his "Wild Sports of the West," says that it was formerly the custom among the Irish peasantry, when any one of them was bitten by a mad dog, and showed symptoms of hydrophobia, to place him between two featherbeds and suffocate him. He relates an instance of a man who was left for dead after undergoing this treatment, but who, to the surprise and horror of all who witnessed it, was seen to crawl from the beds relieved from his disease. It was found that the beds were saturated with the perspiration that had escaped from the man's body during the intensity of his mortal agony.

An incident of more recent date was recorded of a French physician who was bitten by a mad dog, and who determined to commit suicide rather than undergo the agonies consequent on hydrophobia. He selected the hot bath as the means for ending his life, having resolved to increase the temperature of the water gradually, so as first of all to induce syncope, which he hoped would be succeeded by death. To his surprise, however, he found that as the temperature of the water was increased, his sensations of distress improved, and instead of ending his life in a hot bath, it proved the cause of restoring him to health.

It would be most desirable to ascertain what influence the Turkish bath would have in curing hydrophobia, and it should be made the subject of trial.

For a great number of years eau de luce has been esteemed in India as the most potent and valuable remedy in the treatment of the bites of snakes, more particularly in that of the cobra; and there can be no doubt that, next to alcohol, it is one of the most readily diffusible of our stimulants, and it maintains its reputation there to this day. There is one house in particular in London that has the credit of preparing this medicine superior to all others.

However valuable eau de luce may occasionally appear to be in conjunction with the far more important remedy—namely, muscular stimulation—in assisting in the cure of a person bitten by a cobra, much of its efficacy must depend upon the instantaneous administration of it; so that it may *at once* prove the means of sustaining the action of the heart and lungs, and preventing, by its powerfully stimulating property, the deadly sedative influence of the poison from paralysing these organs.

The same rapidity of administration applies to alcohol, for this remedy, to be of value, should be drunk in large quantities instantly.

In America, where the rattlesnake was formerly very common, it was the custom, when a person was bitten by one of them, instantly to take a large draught of neat spirits, as much as a pint of whisky being swallowed at a time. The quantity under such circumstances that has been drunk would if ascertained, appear incredible; but all medical men are familiar with the fact that, in some cases of intense nervous depression and nervous exaustion, spirits may almost be said to be capable of being "drunk like water."

In making these few observations I have striven to be as concise as possible, and contented myself with simply suggesting what I venture to think may be the true mode of action of the poison of the cobra upon the body, and the remedy that is most likely to counteract it. No person, however, can be blind to the fact that, for this mode of treatment, or, indeed, any other, to be attended with success, it must be promptly applied. The treatment required for the prevention of death from poisoning by opium presents the strongest analogy to that to be pursued for the prevention of death from the bite of the cobra di capello.

**Lower Seymour-street, Portman Square, Feb. 1868.**

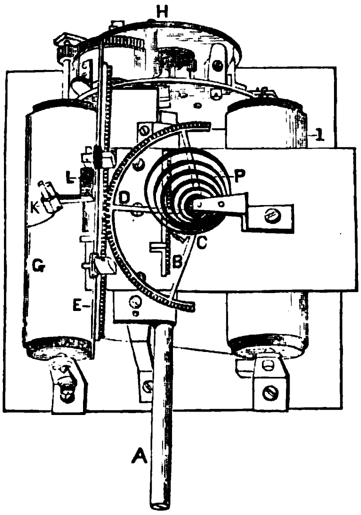
# THE GRAPHIC METHOD APPLIED TO THE MOVEMENTS OF RESPIRATION.

By David C. M'Vail, Esq.,

**House-Surgeon to the Alnwick Infirmary, Northumberland.**

Of late years, various instruments have been invented and brought into use for the purpose of obtaining true and permanent tracings of varying movements on paper moving at a uniform rate by means of clock or watch work. So far as I can learn, the first suggestions on this subject were made by Professor Andrew Buchanan, of Glasgow, who many years ago proposed an instrument for giving a permanent record of the motions of the bloodvessels. But, for some reason or other, the idea received comparatively little notice until quite recently, when Prof. Marey introduced his improved sphygmograph. Some time ago, also, Morin constructed an apparatus for recording the rate of the rapidity of falling bodies, which traced their descent on a cylinder moving perpendicularly by means of clockwork. And for some time past a machine has been used by mariners for permanently recording the course of ships during long voyages.

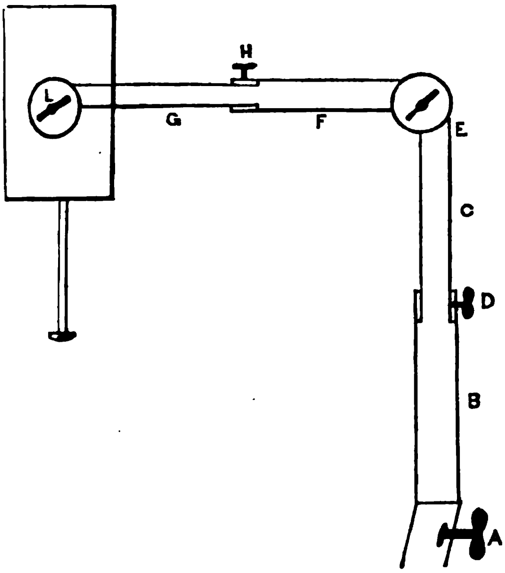
Somewhat more than six months ago, the idea occurred to me that the graphic method might, with very great advantages, be applied to the movements of respiration; and, after considering the matter very attentively, I had a model constructed, which, on being tested, satisfied me that the idea work beautifully, if properly carried out. Accordingly, I engaged a first-class workman to construct from the model and some drawings a small machine which I had every reason to believe would answer the purpose. And I have not been disappointed, for the instrument represented in the accompanying engraving, so far as I have yet wrought with it, answers my most sanguine expectation. It will be seen from the diagram that the “spirograph” (for so I purpose calling it) in no way resembles the sphygmograph, except in so far as both it and the sphygmograph, resemble all the other graphic instruments—namely, in that they write on paper moved by clockwork. Nor is it from any love of novelty that it differs from its elder brother, but from the fact that no instrument constructed on the plan of the sphygmograph would be of the slightest use as a spirograph. And the reason of this is very obvious. As most of the readers of THE LANCET are aware, Marey’s improved instrument consists essentially of a lever of the third kind, there being a fulcrum at one end, and the pen which writes on the moving paper at the other, the power being applied between and close to the fulcrum, in order that the comparatively small motion of the pulse may be considerably multiplied. Now, of course, the pen moving at the end of the lever would, if a uniform motion were applied—such as would be given by a small sewing-machine,—describe, not perfectly straight lines (as, to be theoretically correct, it ought to do), but a series of arcs of a circle, thereby necessarily confounding the curved tracings caused by the instrument itself, and those which may be imparted to it by the part under examination.



Now, in the case of the sphygmograph, where the motion of the pulse is so very small, and the circle described so very large, the imperfection is practically of but little consequence, although I can see no reason for working with an incorrect instrument (especially one so delicate) when a perfect one can be so easily constructed on the principle figured in the diagram. But in the case of respiration, where usually the motion is pretty considerable, and in forced breathing is very great indeed, the lever is quite inadmissible; for any lever of a workable size would give tracings so very much curved as to be quite useless. For the markings to be of any use the lever would require to be several feet in length, and the pencil end would move through such a space, and, consequently, would require paper of such breadth and length as to need a moving power little short of a small steam-engine to work the paper drums. And, besides, it would take so much power to work the lever that its delicacy, and consequently its truthfulness, could not be relied on.

Therefore, so far as I can see, the best and simplest plan of overcoming the difficulty is that represented in the figure. The piston (A), which is applied to the chest, moves, and moves with (but is not attached to) the small rack (B); which, by means of the small wheel (C) and the large wheel (D), moves the large rack (E), to which the pen (K) is attached. Now, as the radius of the wheel D is exactly three times as great as that of C, it follows that the motion of the large rack E, and with it the pen, will be exactly three times that of the rack B, and, consequently, the respiratory movements are by the machine multiplied thrice. The drum (G) is turned by the clockwork (H) at a uniform rate, and is supplied with paper by the feeding-drum (I). The pen (K) (which is merely a glass tube drawn to a point and filled with red ink) moves with the rack (E) in a straight line up and down, and, by means of the fine spiral spring (L), the point of the pen is kept always gently applied to the paper on the drum. The drums are so constructed as to be easily taken off and put on, in order that they may be supplied with paper without trouble; and a small spring drag is kept applied to the end of the feeding-drum to prevent the paper from being too readily drawn off. The clockwork, also, is so constructed that, by means of a small “catch,” it stops spontaneously every minute in order to isolate each minute’s work by itself. The work resumes its motion whenever the catch is pressed down. The piston (A) is made to follow the part of the chest or abdomen to which it is applied by the action of the coiled spring (P); and the strength of this spring can be regulated to any desired extent.

The most convenient form of stand is that represented in the figure. It is attached by the screw A to the back of a chair. The tube C moves up and down and round about within the tube B, and is fixed in any desired position by the screws D. The joint E, which is fixed at will by the finger-screw, allows of motion as a horizontal hinge-joint up and down. The tube G draws in and out and moves round about in the tube F, and is tightened by H. The spirograph itself is easily attached to and detached from the flattened end of G, by means of the finger-screw L, which also acts as a horizontal joint, allowing the instrument to turn freely round about. This stand, therefore, allows application of the spirograph to any part of the chest or abdomen, and is, at the same time, very portable. When it is desirable to obtain tracings of the motion of the whole of one side of the chest, from the spine to the sternum, at once, a piece of tape or a smooth leather belt is attached by one end to the table on which the patient lies, or to the chair on which he sits, and being brought round the chest or abdomen, is attached by the other end to the extremity of the piston.



The form of instrument here described appears to me to possess the following recommendations:—

1st. It is exceedingly simple and portable, for although the one with which I am at present working is in size about as large as a small French clock, there is no necessity for its being much if at all larger than a fair-sized snuff-box.

2nd. It can be applied to any individual part of the chest or abdomen, and to any extent of the chest or abdomen at once that may be desired.

3rd. It is, if properly made, (the teeth especially must be properly cut,[*]) *absolutely correct*; for if the piston be worked by a uniform motive power, the tracings must be quite rectilinear.

4th. By having variously shaped end-pieces for the piston, it will, I am certain, be easily applied either to the parts concerned in respiration, to the heart, or to the bloodvessels; in fact, it will be a spiro-cardio-sphygmograph, or, for brevity's sake, a "motograph." My present instrument is rather too large for the arteries, but there is not the slightest difficulty in the way of constructing one that will do for all.

As this paper is quite long enough already I must defer at present giving any account of my practical work with the spirograph, but will forward a brief account at an early date.

**Alnwick Infirmary, Jan. 1866.**

A CASE OF

# GENERAL PARALYSIS OF THE INSANE OF UNUSUALLY RAPID DEVELOPMENT.

BY EDGAR SHEPPARD, M.D., &c.,

**Medical Superintendent of the Male Department of Colney Hatch Asylum.**

THE following case is interesting, as showing in how short a time, accompanied by very definite pathological lesions, the disease known as "general paralysis of the insane" may prove fatal, and also as clearly marking precedence in the order of symptoms. It will be seen that delusions of a "grand" character first appeared, followed by motor affection of speech, and ending in total inability to co-ordinate any part of the muscular system.

J. S——, aged thirty-eight, artificial feather-maker was admitted into the asylum on July 24th, 1867, in a very depressed condition, with contracted pupils, typhoid tongue, hot, dry skin, and pulse of 108 in a minute. He had delusions that he was God; that the grandest equipages were waiting for him; that his inside was full of gold, &c. He was extremely restless, excited at times, and occasionally dirty in his habits. There did not appear to be any deficiency of co-ordinating power over the muscular system generally. The wife said the insanity commenced, about five weeks before his admission, with intermittent excitement and depression, incoherent muttering to himself, indifference to those about him, and restlessness at night. She attributed the illness to anxiety about business and intemperance, if not immediate antecedence. There was no hereditary taint. The treatment consisted of generous diet, with wine, porter, and night sedatives, and occasionally packing in the wet sheet. The typhoid symptoms disappeared shortly; but the delusions were persistent, accompanied by incessant talking, want of sleep, and destructive propensities. It was very amusing to see him stand by himself in one corner of the ward or airing court, and listen to his colloquies with "a rogue inside him," as he expressed it. Under the influence of this delusion, which much harrassed him, he had two or three times attompted to strangle himself, saying, "I'll do for the rascal." He would also stand for hours, rolling out incessantly the words, "All the world round in a second." His appetite now became very voracious, and towards the middle of October a slight tremor and twitching of the upper lip, with imperfect articulation under excitement, became apparent. Subsequently the face became expressionless; saliva dribbled from his mouth; his gait was unsteady; he became deaf, and lapsed into a state of complete dementia. For the four weeks preceding death, on Dec. 25th, the progress of the symptoms was most rapid, and the amount of moter paralysis most remarkable. A general tremor pervaded the whole muscular system, and he was

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[*] My friend, Mr. Henry Trotter, of Alnwick, suggests that instead of tooth work, a piece of Geneva spring, or of the internal chain of a watch, be attached by one end to the wheel, and by the other to the rack.

9th.—A similar state of symptoms generally, vomiting recurring every three or four hours. To have another enema, which comes away unaltered; to continue mixture.

10th.—Rambles a good deal, and appears in a semi-comatose condition at times, which she is soon roused from; pulse 100, of fair volume; skin moist; tongue dry; thirst excessive; no pain; abdomen as usual. To have half a grain of opium every four hours; omit the effervescing mixture.

11th.—Passed a restless night, vomiting matter of the same feculent character every three or four hours. Pulse 110, and has become weaker in volume. To have a tablespoonful of brandy every four hours, and beef-tea *ad libitum*.

12th.—Vomits still, and beef-tea and brandy ejected. To have a mixture composed of valerian and camphor, every dose of which she vomits. Pulse 120, becoming thready; thirst excessive: countenance sunken; expresses herself as feeling more comfortable.

13th.—Vomits still; pulse very thready, 125; countenance much sunken; thirst excessive; tongue dry and furred. To continue the opium pill every five hours.

14th.—Vomits from five to six pints of feculent matter in the twenty-four hours. Is very feeble, and gives up all hope of recovery; pulse 130, feeble; other symptoms as before.

15th and 16th.—Remains as previously, very weak and almost unconscious; pulse hardly perceptible: no pain (as at first) on manipulating or percussing abdomen, and it is perfectly normal in appearance.

17th.—As before; if any change, still weaker; vomiting still continues. To have one-fifth of a grain of nitrate of silver and one-sixth of a grain of muriate of morphia in a pill every three hours.

18th.—Vomits in the evening, but less in quantity than before, and very little during the night.

19th.—A shade better; has had no return of vomiting.

20th.—Copious action per rectum similar to the vomit in appearance; bowels act two or three times daily; pulse is improved. Feels much better, and can rest comfortably at night.

Has since gradually gained strength, and on the 30th was quite convalescent.

**Burton-on-Trent, October, 1867.**

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### ON A CASE OF

# AMPUTATION AT THE SHOULDER-JOINT.

## SECONDARY HÆMORRHAGE; SUCCESSFULLY TREATED BY LIGATURE OF THE SUBCLAVIAN ARTERY.

By W. H. Folker, F.R.C.S.,

**Surgeon to the North Staffordshire Infirmary.**

On the 7th of June, 1867, Joseph H—— was admitted into the North Staffordshire Infirmary, under my care, in consequence of the severe injuries he had received from the cog-wheels of a powerful machine, into which he had been drawn whilst oiling the machinery when in motion. He was found to have sustained a compound fracture of the lower jaw, and his right arm was literally smashed to within a few inches of the shoulder-joint.

At the time of his admission I was absent, and my colleague, Mr. Alcock, amputated the arm at the shoulder joint, there being hardly sound skin enough to cover the parts. Not much was done to the jaw beyond the usual bandage, as the patient was much exhausted.

The following day the patient had recovered from the shock of the operation. A more careful examination of the jaw was now made, when it was ascertained that besides a fracture through the symphysis, another one existed, completely dividing the bone on the right side, just anterior to the angle. An attempt was made to fix the fractured part by wire twisted round the teeth, a piece of gutta-percha being moulded to the jaw externally, and secured by a firm bandage. Although this plan appeared to answer very well at the time, in two days it all gave way, leaving the displacement as bad as ever. The bone was now drilled, and the parts fastened with strong silver wire; but as this was also unsuccessful, a dentist was instructed to cap the entire row of teeth with a plate, and this kept the fractured parts in tolerably good position till union was effected.

As far as the arm was concerned, the patient progressed very favorably, taking beef-tea, milk, eggs, and a little brandy-and-water daily.

On June 23rd the last ligature came away.

26th.—Slight hæmorrhage occurred, which was stopped by pressure.

29th.—At 5 A.M. the hæmorrhage recurred to an alarming extent. Pressure was made by the house-surgeon firmly over the subclavian, and controlled the bleeding as long as it was applied. A consultation was hastily summoned, and it was at once decided to ligature the subclavian artery, as no doubt existed as to the source of hæmorrhage. The artery was tied in its third part; the usual incisions in the skin and through the platysma were made, and the dissection down to the artery and through its sheath was completed with a silver scalpel; the aneurism-needle was passed between the artery and vein. No blood was lost during the operation; but the patient was faint and blanched from the loss he had previously sustained.

30th.—Passed a good night without an opiate; pulse 80; body warm; no sickness or faintness. To take milk diet. There is a sanious discharge from the axilla, which is much swollen, evidently with clotted blood.

This swelling and discharge gradually diminished, the case progressing favorably until July 12th, when diarrhœa set in, which, however, was soon checked by the compound chalk powder with opium.

On July 23rd, at 3 P.M., the ligature came away twenty-four days after the operation. The patient looks well, and has a good appetite, though eating is somewhat difficult on account of the jaw. There is still a purulent discharge from the lower part of the wound in the axilla.

August 16th.—Another attack of diarrhœa came on, but yielded to the treatment employed on the previous occasion.

On the 27th he was discharged cured.

**Hanley, February, 1868.**

NOTES ON AN

## INTERESTING CASE OF MIDWIFERY.

By W. H. Tayler, M.D., M.R.C.S.

On the 22nd of April, 1865, I was called to attend a woman, aged twenty-nine, in labour with her first child. Finding the pains were very slight I left. I called again in the afternoon, and made an examination, but could not feel the os. I began to suspect there would be some difficulty in the case, but, as the pains were about the same, I went away, telling the nurse to send for me as they became stronger. About eight P.M. I was summoned, and now found the pains were of the right sort. I made an examination, but could neither detect any presentation, nor find the os. I felt about for some time, and at last detected a very small indendation (not an opening) about the size of a pea. This I considered must have formerly been the os, and that I had a case of occlusion of it. I also found the pubes projecting very much inwards, making the antero-post diameter very narrow, and altogether rendering it a case in which I did not feel justified in acting without a second opinion. I therefore sent for my friend, Dr. Stilwell, of Beckenham. He came, and agreed with me as to the nature of it. We also came to the conclusion that nothing remained but to make an artificial os, and overcome the pubic projection by forceps or craniotomy. I informed the husband of the difficulties of the case; he suggested further advice from town, but I told him the confidence we had in each other by reason of our having acted together in several most difficult cases which had occured in our respective practices, made us feel quite equal to any emergency, and that we declined the assistance of a physician-accoucheur from London.

First to make an os, I passed one of the blades of a pair of long scissors through the indentation in the uterus, and made several notches round it, which enabled me to introduce the point of the forefinger into the uterus. We then waited to see the effect of the pains. It did not dilate much. Then, by degrees, I introduced the middle finger, and by stretching the edges, somewhat increased the opening. After three hours' work I managed to get two fingers in, and could feel the head presenting. After manipulating for another two hours the opening was sufficiently dilated to render it advisable to rupture the membranes. This being done, the head, after a time, came down as low as the pubic projection would admit; but here all further progress was stopped. We then applied the forceps, but there was not room enough, and we had to give it up. There was now no help for it but to perforate the cranium. This we did, and after great difficulty succeeded in delivering the woman. There being some placental adhesions, we broke them down, and removed the placenta; and heartily glad we were to complete the case. It was now eight A.M., and we were somewhat fatigued with our anxious night's work.

The most gratifying part of the case was that the patient recovered without a single bad symtom, would insist upon getting up on the seventh day, and was about as usual in a fortnight. Since then her health has been good, the catamenia regular without pain, and she is now in the third month of pregnancy. She has left the neighborhood, but will return to it to be under my care for her confinement, and I hope, by inducing labor before the full period, to deliver her of a living child.

Tudor House, Anerly, Dec. 1867.

## ALBUMINURIA IN A CHILD SEVEN WEEKS OLD.

By G. F. Helm, B.A. Cantab., F.R.C.S,

Surgeon to Rugby School.

On October 3rd, 1866, I was called to see the infant of the Rev. C. S——, aged seven weeks.

*History.*—Was a fine child when born, but since has been troubled with almost constant vomiting, for which every variety of food has been tried. As the mother from the first had no milk, the child has been entirely fed by hand up to this time. The different foods which have been ordered from time to time have usually remained on the stomach during the first few days of their trial; but after a short interval the vomiting has returned as badly as ever, and a fresh food has then been tried with a like result. No history of scarlatina or measles.

The child is a perfect skeleton, almost the most miserable object I ever beheld; lies listlessly in any position in which it may be placed; appearing not to suffer any pain; indeed it scarcely ever cries out with pain. I can detect no mischief in the thorax nor in the abdomen, which is soft and not distended. Head rather small; no heat of head or skin; pulse very weak and rapid; bowels open regularly twice a day; motions said to be natural; has not passed urine for twenty-four hours. I ordered a wet-nurse, as that had not as yet been tried.

Oct. 7th.—Nurse's milk has been rejected like everything else in the shape of food. On testing some urine to-day, I found it pale, almost like pure water, and containing sufficient albumen to make a deposit of some height in the test-tube. To try beef-tea, and a regulated quanity of brandy in small quantities at frequent intervals.

10th.—No improvement, a donkey has been procured. The milk to be taken in a small quantity at a time; also ten minims of iron wine every six hours.

24th.—Up to this time the donkey's milk has agreed well with the child, to judge by the absence of vomiting; still no real progress is being made. The urine contains the same amount of albumen. I am unable to test the specific gravity, the urine not being procurable in sufficient quantity. Now the milk and the steel wine are both rejected. Ordered to persevere with the donkey's milk and wine; the former in very small quantities, frequently repeated.

Nov. 4th.—Child died at 7 A.M., having taken its bottle with apparent appetite at 6.15, after which the nurse went to sleep, and on waking found the child dead by her side.

*Post-mortem.*—Body literally skin and bone. Head not to be examined. Lungs pale and anæmic, as indeed were all the other organs examined, excepting the kidneys, both of which showed patches of congestion, the other portions being by contrast very pale. The capsule was not adherent, neither was the substance of either kidney softer than usual. There was a general absence of blood in all the tissues, and even in the large veins scarcely any was to be found.

*Remarks.*—I have never seen a similar case in so young a child, neither can I find reference to any in the books to which I have access. At first I suspected that there might be some malignant disease of the kidney, looking to the extreme emaciation; though absence of any discoverable tumour in the abdomen was against that supposition. Now I think the case must be considered as one of the albuminuria from imperfect digestion and assimilation of the albuminous constituents of the food; for though the kidneys presented some spots of congestion, they cannot be considered as diseased. The real fault probably was in the stomach, where, either from inappropriate food being supplied, or from some radical disorder in the organ itself, an imperfectly formed albumen was manufactured, absorbed into the circulation, and then excreted by the kidneys as being worthless for all purposes of nutrition.

Rugby, Dec. 1867.

## PHYSIOLOGICAL OBSERVATIONS UPON DR HARLEY'S "AUTO-CLINICAL REMARKS."

By Henry Power, M.B., F.R.C.S.,

Ophthalmic Surgeon to St. George's Hospital.

The short report of Dr. Harley's case, published in the columns of The Lancet last month, under the title of "Auto-Clinical Remarks," is one of great interest, not only pathologically as an instance of a rare form of disease, and therapeutically as indicating the value of rest in the treatment of retinal affections, but also physiologically in reference to the singular phenomena observed. Whilst making a few comments upon the report, I may be permitted to offer my congratulations, in common with many others of the profession, to Dr. Harley on the restoration of his sight, and to trust that his recovery may be permanent. His symptoms appear to have been due to a condition of hyperæmia (sufficiently attested by the rupture of one or more of the vessels), occasioning an extraordinary exaltation of the sensibility of the retina, but not accompanied by what must be regarded as the essential feature of inflammation—interstitial effusion. At all events, when inflammation is really present, hyperæsthesia and extreme intolerance of light are not in general prominent symptoms. Looking at the case from a purely physiological point of view, the three effects noticed—of abolition of the powers of distinguishing colors, of appreciating distance, and the greater persistence than usual of images on the retina—are all instructive. That long retention in darkness abolishes the power of distinguishing colors is interesting, not only as proving that the more refrangible rays of light produced by more rapid undulations are really the most powerful excitors of the retina—greys, reds, and browns giving the sensation of blackness, or the negation of color,—but also as furnishing another instance of similar effects being producible by opposite causes the same phenomena being observed, though not in quite so marked a degree, in the healthy eye by short exposure to excess of light, as by looking at the sun for a few moments, or even at the glare of the electric light. In both cases the results are the same, though in one occurring in a retina the sensibility of which has been modified by prolonged rest, and in the other by over-stimulation.

The extreme elongation or extension of all objects noticed by Dr. Harley is a phenomenon of not very unfrequent occurrence after the application of Calabar bean to the eyes, and the term macropsy has been applied to it. The opposite condition (micropsy)—all things looking smaller than natural—is occasionally seen after the instillation of atropine. It is not easy to offer an explanation of these effects. Two conditions which were also probably present in Dr. Harley's case are common to both—namely, the loss of the power of accomodation, and immobility of the iris. It has occurred to me that the great extension noticed after the Calabar bean and by Dr. Harley might possibly be explained by, or rather be connected with, diminished sensibility of the retina for the lower tints of color; for as we judge of distance very much by play of light and shade, and as objects in proportion to their remoteness appear of duller tints and less defined, so the retina in his case, taking less cognisance than usual of more distant or more feebly illuminated objects, led the mind to refer them to a more remote position than they actually occupied, thus giving the impression of elongation. Or it might otherwise be explained on the supposition that the retina, become highly sensitive by prolonged rest, perceived innumerable gradations of light and shade in every object which usually pass unnoticed, but which here filled the mind and gave the impression of space, just as the apparent field of vision is in every eye increased in proportion to the number of objects seen in it.

In regard to the great persistence of impressions made on the retina during Dr. Harley's recovery, I may remark that I have observed the retina is much more retentive of the images of external objects in the morning, especially soon after waking, than at night.

Those who are engaged in the practice of ophthalmic surgery will be interested to receive further details of Dr. Harley's case, and to know what means were adopted to obtain "total darkness."

Seymour-street, W., Feb. 1868.

CASE OF A

## FOREIGN BODY REMOVED FROM THE FEMALE BLADDER.

By Henry Smith, F.R.C.S.,

Assistant-Surgeon to King's College Hospital.

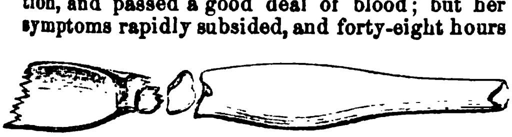
Several very remarkable and interesting cases where foreign bodies have been removed from the bladder either of the male or female, must be familar to the readers of The Lancet, as they have been within the last few years reported in this journal by Sir William Fergusson, Sir Henry Thompson, and myself. To these I have now to add another singular case, where surgical aid was necessary for the removal of a body which had been purposely introduced into the urethra by a woman, and which had subsequently slipped into the bladder.

I was requested, on the evening of Dec. 18th, 1867, by Dr. Cartwright Reed, to see Mrs.——, a married woman and mother of children. I was informed that twenty-four hours previous she had, for some purpose best known to herself, introduced into the urethra an instrument made of bone, used for the purpose of clearing the nails, and which in shape and size was very similar to an ordinary mustard-spoon. When Dr. Reed was called to her he found that the foreign body had slipped into the bladder, and accordingly he introduced a suitable pair of forceps, and endeavored to extract it, but as it lay across the bladder, he failed to get it out, and after some attempts desisted.

On making an examination I found that the urethra was so large and dilatable as to allow of the insertion of my little finger, which I was gradually able to pass into the orifice of the bladder, and I then could feel the foreign body lying transversely. With the view of extracting it entire I introduced the forceps, and caught it. I next passed my forefinger into the vagina, and endeavored to turn the body round, but could not succeed after several attempts.

Finding that it was impossible to extract it entire, I introduced a powerful lithotrite and tried to crush it, but I could not succeed until I caught it at one extremity, when, putting on all the force I could muster, it gave way; and on introducing the lithotrite scoop I extracted the broad or spoon end. I next managed to break off the other and pointed extremity, and withdrew that. Still I found that there remained entire the body of the bone; and, being unable to extract that, I seized it with the large lithotrite, and made several attempts to break it: but in vain; for the instrument itself, constructed of the finest tempered steel, bent to such a degree under the force of the screw that I was fearful of breaking it, and desisted, intending to defer any further attempt until I could obtain a more powerful instrument. I determined, however, to make one other trial to seize the now shortened piece of bone and extract it, and accordingly introduced the small lithotrite scoop, and most fortunately caught the foreign body by one end, and extracted it entire without difficulty.

The operation was a long and severe one; but the patient bore it well, and when it was completed sat up in the bed, and, with the utmost *sang froid*, examined the parts removed, and pointed out to me where the pieces fitted, in such a manner as to convince me that it was not the first time she had made use of this singular instrument for her own particular purposes. This patient suffered much pain for a few hours after the operation, and passed a good deal of blood; but her symptoms rapidly subsided, and forty-eight hours afterwards Dr. Reed informed me that she had passed her water perfectly free from blood, and had complete control over the bladder.



From the accompanying engraving of the foreign body it will be seen that portions of either end had been broken off by the lithotrite. These pieces were either completely crushed, or were lost after removal.

Wimpole-street, Cavendish-square, Feb. 1868.

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### A CASE OF

## FATAL HÆMATEMESIS, WITH REMARKABLE PATENT CONDITION OF THE GASTRIC BLOODVESSELS.

By Walter D. Jones, M.D., M.R.C.P. Lond.

A. B——, aged fifty, was taken early in January of the present year with vomiting of the blood, voiding of bloody stools, and a sense of heat in the region of the stomach, with sickness, but without pain on either side, shoulder, or stomach. On pressing and examining the region of the liver, no pain was produced, nor any enlargement felt. The stools were said to have been bloody for many months past, although there were no hæmorrhoid; but the hæmatemesis is only of recent date, and was only occasional. The blood vomited was of a grumous, half-digested appearance. Appetite quite gone. Pulse 90, regular, but soft and languid. Anæmia and great prostration of strength were present: the face was pale, with a tinge of red on each cheek. The action of the heart was quite regular and healthy. There was œdema of the ankles, and the countenance anxious.

The symtoms were relieved by treatment; but on Jan. 30th he died suddenly, with a slight convulsive struggle. During this interval the bloody vomiting ceased for three days, but the bloody stools continued. The patient had served at Hong Kong twenty-five years ago, and was invalided home with ague and dysentery, which continued for some months after his return.

The post-mortem examination was made on February 2nd. Upon removing the sternum, and examining the cavity of the chest, the lungs were found to be in a healthy state. The chest appeared however, rather contracted, and not well developed. Several ounces of fluid serum were found in the cavity of the pleura; more fluid than usual was found in the pericardium. The exterior of the heart was in a perfectly healthy state, and upon the most minute examination the heart was found to be perfectly healthy and sound in every respect. When the abdomen was opened, the intestines were much inflated with air, and a considerable quantity of serum was found in the cavity of the abdomen, and some slight adhesions between the peritoneal coverings—not unusual. The liver showed very great derangement; it was of a very pale-yellowish color, much smaller than usual; its exterior was rough, hard, exhibiting a granulated and cirrhosed appearance, with hardly any blood found in its substance; both lobes were diseased alike. The gall-bladder contained no bile at all, and was, like the liver, of a very pale color. To the feel, the liver was rough, tuberculated, knotty, and hard. The spleen was much enlarged, and of a very pale appearance, but not rough or tuberculated like the liver. Upon ex amination of the stomach, about forty-five ounces of coagulated blood were found contained in it. The exterior as well as the interior surface appeared free from disease; there was no ulcer or abrasion. There was no disease in either the cardiac or pyloric orifice; but the bloodvessels throughout the whole viscus were very much enlarged, some of them large enough to admit the point of the little finger.

It is evident that in this case life was sustained for a long time by the blood having been digested a second time, as it were, after it had passed once through the circulation, and returned once more to the stomach to endeaver to perform the same function with other food again. The cirrhosis of the liver had, no doubt, been coming on for many years, and most probably had its origin in the Hong-Kong ague twenty-five years ago.

**Llancych, Carmarthenshire, February, 1868.**

## A CASE OF CONFLUENT VARICELLA.

By J. Pidduck, M.D. Edin., M.R.C.P. Lond.

The confluent form of varicella is so rare that a well-marked example of it is worth recording, because of the striking resemblance it bears to confluent variola; the one a very formidable and alarming disease, the other of a comparatively trivial nature.

In November last about half a dozen cases of simple varicella had appeared among the students in the Home and Colonial Training Schools, Gray's-inn-road. The eruption consisted of papulæ, with only a few characteristic vesicles here and there dispersed, and attended with very slight indisposition, the eruption drying off within a week. Separation of the subjects of this slight epidemic was enjoined.

On November 29th my attention was called to M. R——, aged eighteen. She complained of universal malaise, of the rheumatalgic kind. On Dec. 4th numerous papulæ appeared on the face and hands, which spread over the whole surface. On the ninth day they became vesicular, filled with straw-colored fluid, and confluent, first on the wrists and back of the hands, then on the face and forehead, forming a complete mask. The eruption—first papular, then vesicular, but never purulent—was distinct but very numerous, over the whole surface, and many vesicles occupied the the tongue and fauces. Although the eruption was so formidable, the eruptive fever and the secondary or fever of maturation were comparatively mild. On the fourteenth day the vesicles began to dry off in flakes on the wrists and face, leaving only a redness, no cicatrices; and on the rest of the surface in round scabs, without the slightest approach to the umbilicated crusts of variola. It appeared simply as a cutaneous eruption, which did not extend to the basement or subareolar tissue, and therefore it gave rise to only very slight pitting.

The case was seen by my friend Dr. Bealey, of Tavistock-square, who at once fully confirmed my diagnosis. He had never seen a case of the kind before; and I only one, that I recollect, twenty years ago, which came under my care at the same institution.

The treatment was very simple: an aperient in the papular, and again in the vesicular, febrile stage; effervescing citrate of potass; a darkened, airy room; a cool regimen; painting the face with flexible collodion to prevent the possibility of cicatrices. The diet consisted of apple-tea, barley and gum-water flavored with lemon-peel: corn-flour, arrowroot, and milk; custard pudding during the febrile or eruptive stage. Then chicken-broth and chicken during desquamation and convalescence. She really had not an untoward symptom from the commencement to the termination of this apparently appalling, but in reality mild, disease.

**Montague-street, Feb. 1868.**

## CONTRIBUTIONS TO PRACTICAL MEDICINE AND SURGERY.

By Fred. H. Morris, M.D.

### No. IV.

### UTERINE HYDATIDS.

A variety of opinions exist among obstetric practitioners respecting the pathology of uterine hydatids, some authors attributing their development to degeneration of the villi of the chorion, while others assert they may occur without sexual intercourse. That they may be produced by degeneration of retained placenta the following case will show.

Mrs. L——, the mother of three children, the youngest of whom died about five years ago, consulted me in June, 1867, on account of uterine hæmorrhage. The history she gave was that she had aborted about five weeks previously, being then, as she supposed, four months advanced. The hæmorrhage had continued at intervals ever since. She positively refused to submit to an examination. I therefore perscribed a mixture of gallic acid, tincture of cinnamon, &c., and recommended rest in the recumbent posture. This treatment relieved the hæmorrhage, which, however, returned on any exertion until the 23rd of July, when I was hastily summoned on account of profuse hæmorrhage, which alarmed her, and she then consented to be treated properly. On examination, I found the os uteri patulous, so as to admit the tip of the finger, and a spongy mass blocking up the orifice As it could not readily be detached, I plugged, and gave a few doses of ergot. In a few hours uterine contractions came on; and, on removing the plug, the placenta followed, together with a mass of hydatids sufficient to half fill a washhand basin, varing in size from a pea to a large grape. A few more cysts were removed, after which the uterus contracted, and the hæmorrhage ceased. The breasts became turgid and painful on the third day, which were relieved by a few doses of iodide of potassium, the lochia remaining as after a natural labour, and she gradually recovered her strength.

The above proves the utter impossibility of satisfactorily treating uterine hæmorrage without examination, either digital or, if necessary, by means of the speculum. Had this been allowed in the first instance, much suffering, and even danger, would have been prevented.

**Cheltenham, Feb. 1868.**

ON THE

## IMPROVEMENTS OF LITHOTOMY RECENTLY PROPOSED BY SIR WILLIAM FERGUSSON, MR. ERICHSEN, AND SIR H. THOMPSON.

By Prof. Buchanan,

University of Glasgow.

I have been well pleased to see the eminent surgeons named above striving with each other to improve the operation of lithotomy. It shows the time to have gone past when the lateral operation was considered unimprovable. I am still further gratified to observe that all of them assume Dupuytren's bilateral operation as the starting-point of their researches. In so doing they are pursuing the same path which I took, twenty years ago, with the same object in view; and I do not doubt, if they persevere in it, that they will arrive at results very similar to those which I obtained. This, indeed, they have already to a certain extent done. Mr. Erichsen prefers the rectangular staff to any other; and Sir William Fergusson has abandoned the bilateral section of the prostrate, cutting it only on one side. This last is surely a wise step. We should never forget that it is the internal incision which endangers the life of the patient; it can never be advisable, therefore, to make two internal incisions if one can suffice. It may be too much to say that by cutting both sides of the prostrate we double the risk; but it may at least be said that ample and dearly-bought experience has shown that by cutting both sides we increase the risk in a high degree. The bilateral operation was a most unfortunate one in its results. It was more fatal than the lateral. The distinguished author of it, after all the pains he had taken to render it perfect, was compelled to renounce it on account of the frightful mortality with which it was attended. It would, as appears to me, be an imprudent step to recommend such an operation, unless much modified, to the profession.

As the mere extension of the external incision to the right side of the perineum does not make Sir William Fergusson's operation differ, in any essential respect, from the common lateral, we have ample statistics to guide us in comparing it with the operation which I have recommended; and to that evidence I willingly refer the decision.

Glasglow, Feb. 1868.

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## PARALYSIS OF THE FEMALE BLADDER AFTER DELIVERY, CURED BY THE INTERNAL APPLICATION OF ELECTRICITY.

By W. H. Tayler, M. D.

I lately attended a patient, aged thirty-five, in her first confinement. The labour was very tedious one, and eventually I had to deliver with the forceps, which, owing to the smallness of the pelvis, was a matter of some difficulty. The child was, however, born alive. There was no injury to the soft parts; but the patient was unable to pass any urine, saying she seemed to have lost feeling, and had not any power to evacuate the bladder. I passed the catheter twice daily for some days, and adopted the usual remedies, without any result in improving the tone of the bladder. I therefore resolved to try the effect of electricity to the internal surface of the bladder, having lately purchased of Mayer one of Dr. Mackenzie's laryngeal electrodes. I saw it would be a most convenient instrument to use in this case; so having attached to it a magneto-electric machine, I passed the instrument into the bladder, and applied the electric current for about five minutes, completing the circuit by passing the other handle of the machine over the pubic region and sacrum. After two applications (the bladder being previously emptied) there was a slight improvement. On the third application I introduced the electrode before using the catheter, and under the influence of the electric current the bladder forced the urine out by the side of the instrument, and on the same day the patient was able to pass urine. I applied it again for the fourth time on the following day on the emptied bladder, after which the patient had full control over the bladder, and continues to pass her urine without any difficulty, and is doing well in every respect.

Tudor House, Anerly, February, 1868.

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# A Mirror
# OF THE PRACTICE OF
# MEDICINE AND SURGERY
# IN THE
# HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

## GUY'S HOSPITAL.

### DISEASES OF THE BREAST IN THE MALE.

(Under the care of Mr. Thos. Bryant.)

The following cases of disease of the male breast will probably be read with interest, for they are of sufficient rarity to be worthy of record. They have occurred in Mr. Bryant's practice at Guy's Hospital during the last few years, and have been taken from his own brief records made when the cases were passing under his observation. The first eight are examples of inflammation of the gland, with or without suppuration; and the last four are good examples of hypertrophy of the gland, with one rare example of what he believed to be from its clinical characters "adenoid."

Case 1.—Timothy W——, aged fifteen, a carpenter, applied to Mr. Bryant, at Guy's Hospital, on the 7th of December, 1865, for some affection of his breasts. It had appeared some months previously without any known cause, and both glands were simultaneously affected. The boy's health appeared to be good, and no local injury had been sustained. Fomentations locally, and tonics internally, acted with a favorable result, for in one month the boy was quite well.

CASE 2.—George D——, aged twenty-one, a shoemaker, came under Mr. Bryant's care, at Guy's Hospital, on the 13th of December, 1865, for an inflammation of the left breast of three weeks' standing. It appeared to be due to the pressure of his last. The gland was much enlarged, and very painful. Pressure was removed, and fomentations ordered. Quinine was also given; and in six weeks the man was well.

CASE 3.—George W——, a carpenter, aged thirty-one, came under Mr. Bryant's care, at Guy's Hospital, on Jan. 19th, 1866, with a chronic induration of the left breast. It had existed for about six weeks, and had come on without any known cause. The whole gland was felt on manipulation to be considerably thickened and painful. There was also some enlargement of the axillary glands. Fomentations were ordered to the part, and tonics given; and by March 23rd the gland had recovered its natural size and condition. The right breast then took on the same action, and became so enlarged as to produce retraction of the nipple. By the same treatment this affection gradually disappeared; and by May 20th the man was declared to be convalescent.

CASE 4.—Frank F——, aged fifty-two, a Dane, came into Mr. Bryant's hands for treatment on July 11th, 1866, for an enlargement of the left breast of four months' duration. The gland was very painful, and as large as many women's. No cause for the disease could be detected. Tonics, as quinine, were given, and fomentations applied; and in six weeks the disease had disappeared.

Case 5.—George A——, aged twenty-eight, a shoemaker, came under the care of Mr. Bryant on the 26th of February, 1865, for a painful enlargement of the left breast. It had been gradually coming on for one month, and appeared to be due to the pressure of his last. The gland was considerably thickened and swollen; manipulation also caused pain. Fomentations were ordered, and all pressure upon the part forbidden. Tonics were also given. By March 10th the swelling had considerably subsided, and by April 24th he was declared to be well.

CASE 6.—William M——, aged forty-nine, came under Mr. Bryant's care on October 12th, 1865, with a chonic enlargement of both breasts of four months' standing. The man's health was good, and no history of injury could be obtained. Both glands were very large, and somewhat painful. Manipulation caused much distress. Fomentations were ordered, and tonics given, and in one month convalescence was secured.

CASE 7.—Joseph K——, aged twenty-one, a smith, came under Mr. Bryant's care on Jan. 3rd, 1858, for an abscess in the right breast. It had been coming for about two weeks, and had appeared without any assignable cause. The man's health was good, and no history of injury could be obtained. The breast was about the size of a large orange, and uniformly expanded. Deep-seated fluctuation could be detected in it. Mr. Bryant opened the abscess, and evacuated several ounces of pus. Tonics were also ordered. In three weeks he was reported as being cured.

CASE 8.—Wm. H——, aged thirty-one, a lighterman, came under Mr. Bryant's care on June 23rd, 1862, for some affection of both breasts. It had been coming on for one week, and both glands became painful, and began to enlarge at the same time. The left he accidentally struck with his oar three days subsequently. When seen both glands were much enlarged, swollen and painful; fluctuation was clearly present in the left. An abscess was opened, and fomentations ordered; quinine was also given. By July 5th the parts had nearly regained their natural condition.

CASE 9.—R. M——, aged thirty-one, a hatter, came under Mr. Bryant's care March 30th, 1857, for a chronic enlargement of the left breast. It had commenced six years previously without any known cause, and had steadily increased. When seen the breast was about the size of half a large orange, with a well-formed nipple. The gland felt like any other gland in the female, and was firm and lobulated; it was quite painless. The man was under observation for some weeks, but no change in the size of the breast could be observed. He was treated by local pressure.

CASE 10.—T. H——, aged twenty, came under Mr. Bryant's care in August, 1855, with an enlargement of the right breast, which had been gradually growing for three years; it was quite painless. The gland was clearly simply hypertrophied, and was about the size of a fist. He came up from the country for advice, and was not seen a second time. Pressure was ordered.

CASE 11.—S. H——, aged twenty-five, tailor, came under Mr. Bryant's care Feb. 7th, 1861, for some enlargement of the left breast; it had been coming on for two years. When seen the breast was clearly much hypertrophied; it was about the size of half a large orange, and felt like the gland of a woman who had just given up suckling; it was painless. Pressure was advised, and tonics given, but little benefit resulted from the practice. The man did not remain long under observation.

CASE 12.—Samuel C——, aged forty-five, came under Mr. Bryant's care Dec. 1st, 1862, with a tumour in the left breast. He had discovered its presence by accident some few weeks previously, when it was about the size of a walnut. It was a lobulated firm mass, clearly connected by a pedicle to the sternal margin of the left breast. The breast was more like that of the female than usually appertains to the male. The tumour had all the clinical features of the adenocele so common in women. Exision was advised but declined.

## ST. GEORGE'S HOSPITAL.

### A CASE OF HANGING; DEATH FROM THE SECONDARY EFFECTS.

(Under the care of Dr. FULLER.)

SUCH a case as the following, which was lately brought into St. George's Hospital, is not very common; for assistance is rarely rendered to suicides until death has already occurred by apnœa. It is a good illustration of the fact that it by no means follows that when the respiratory process is re-established the person is safe. Death would seem to be due to the poisonous influence of the circulation of dark-colored blood. We are indebted to Dr. Reginald Thompson, medical registrar, for notes of the case.

George S——, aged twenty-eight, a coachman, was admitted on the 20th January under the following circumstances. The history given was that he had been in a low desponding state of mind, and had been living very badly for six weeks. On the day named he was missed by his wife and was found in the washhouse hanging from a rafter. He was cut down after a very short time (it was said, two minutes after the act.) He was subsequently bled, and was brought into the the hospital at 11 A.M. On admission, his pulse was small and rapid, 140; respiration abdominal and gasping, 52; he was perfectly unconscious, the pupils fully dilated, skin cold and clammy; he was extremely restless, rolling and throwing his arms about, and restraint was required to keep him in bed. Every now and then he was attacked with spasms of dyspnœa and with excessive opisthotonos; the back being arched gradually, with no convulsive action. He was ordered to have a turpentine injection, a blister to the nape of the neck, and five grains of calomel administered by the mouth. At 1.30 P.M. his pulse was 228 in the minute, and the opisthotonos was slightly less frequent. At 4 P.M. this symptom ceased, and irritability and restlessness were diminished. At 5 P.M. his pulse was quieter and only beat 108 in the minute; he began to open his eyes, but he did not seem to be conscious. He was ordered an emetic; and a scruple of ipecacuan and two grains of tartarised antimony were given, but did not produce any vomiting. On the following morning he was more conscious and smiled when spoken to, but never spoke nor made any attempt at speaking. He had much difficulty of swallowing, and there was much secretion and accumulation of mucus in the trachea. The pupils had acted to the stimulus of light during the last twelve hours. He had a very sallow and dusky look, and his pulse was small. The urine was obtained to-day for examination, and was found to contain a trace of albumen and some lithates. He fell asleep during the morning, and during this state his pupils were ascertained to be closely contracted. He passed a very restless night, but on the morning of the 22nd he spoke, and could put out his tongue when told to do so. His breathing was much worse, and loud mucous rattles were heard over both lungs. There was so much dysphagia that injections were obliged to be used, and beef-tea and brandy were administered by the rectum. During the morning he became worse, was quite unconscious, and sank; dying, apparently from apnœa, at 1.45 P.M.

The post-mortem examination was made by Mr. Thos. Pick, and the following notes are taken from his description of the condition of the body:—There was a slight abrasion of the cuticle under the jaw on the right side. The lungs were congested, œdematous, and destitute of air; there was some emphysema at the right apex. The bronchial tubes were much congested, and full of thick muco-purulent fluid. The left ventricle of the heart was closely contracted. Other organs much congested. The brain was very turgid and full of black blood, the sinuses being very full. The whole substance was of a pinkish hue, and the puncta were increased in number. Much congestion about the pons and medulla.

## ST. MARY'S HOSPITAL.

### A CASE OF PERITONITIS; RECOVERY.

(Under the care of Dr. SIEVEKKING.)

THE following case is of interest, as being one of peritonitis occuring in a tubercular subject, and yet being probably of non-tubercular origin. For notes of the history, and of Dr. Sieveking's remarks upon the case, we are indebted to Mr. G. P. Field, house-surgeon.

Sarah M——, aged twenty-two, the wife of a painter, was admitted on December 4th, 1867. On admission she complained of great pain and tenderness over the abdomen. Her skin was hot and dry, and there was a marked dulness below the left clavicle, with very defective respiration, and troublesome cough. Pulse 120; cheeks flushed. She remained with her knees bent and legs drawn up, for the slightest movement seemed to cause her great pain. Six leeches to be followed by a linseed poultice, were applied to her abdomen, which gave her great relief, and an opium pill of two grains was given to her.

Dec. 5th.—She states that she has been married two years, and has had one child (seven months'), born dead, in October, 1866. Has never been quite well since. Four months ago she again became pregnant. She says that last week, while at tea, she fainted, after which she felt a severe pain in her abdomen, and has had vomiting, more or less, ever since. For the last ten days she has had a sanguineous discharge from the vagina, and some diarrhœa at first for a few days. Has had a slight cough for some time, and lately has had shivering. Her abdomen is very tender, but not so much so as last night. Tongue dry; pulse 120, and wiry; respiration 36 per minute, and thoracic in character, the abdomen remaining almost motionless. No albumen in the urine, which is of normal color; sp. gr. 1016. She has no appetite, and is very sick.

6th.—Cannot sleep on account of her cough. Ordered one ounce of mixture of squills, three times a day. Complains of great pain in the left iliac region, where the leeches are to be repeated.

7th.—Pain rather easier, but she is sick after everything and cannot take milk.

13th.—Is better, but still sick, and pain continues, more especially in the left side. The mercurial ointment to be applied to the abdomen.

14th.—Pain much less. She says the ointment has done her much good. Ordered four grains of iodide of potash, eight grains of bicarbonate of potash, one drachm of syrup of orange, and one ounce of decoction of bark, daily.

18th.—Dulness at left apex, as before. Intense abdominal pains and heat of the skin. Leeches repeated. Vomits green bilious mucus. Pulse 130; face flushed.

23rd.—Rather better. Is taking ten grains of Dover's powder every night, which quiets her, and gives great relief.

26th.—Since yesterday she has complained of great pain in left leg, which is much swollen and tender, especially in the bend of the knee. There is no redness, no induration of vessels, or visible inflammation of lymphatics. It feels hotter than the other leg, but the patient complains of its being chilly. The swelling is uniform, and there is slight pitting. The right knee is one inch and a half less in circumference than the left. More abdominal pains, with continued swelling and induration in left iliac fossa. Pain in the left hand, when the arms is extended. Cough continues. Pulse 120, weak. Hot fomentations to left leg and thigh.

27th.—The hot fomentations have given her great ease.

28th.—Not so well; complains of pain in stomach and chest. Leg more swollen, and very tender. Pulse 134, and feeble. She has had cold shivering. Cough very troublesome; right leg also affected. She is evidently in a dangerous state. Her legs are ordered to be surrounded with linseed poultices.

29th.—The moist warmth afforded by the poultices has had a very beneficial effect. There is an evident decrease in size, and much less pain.

Jan. 1st. 1868.—Improving. Pulse 132. Left leg not so much swollen. Her appetite is good, and she sleeps well. Is taking the syrup of the iodide of iron and tincture of calumba, half a drachm of each three times a day.

8th.—Much better; is in no pain. Pulse 112. Is taking two ounces of brandy. Stood on her legs for the first time this morning.

15th.—Very much better; sits up now every day. The right leg is quite well, and the left nearly so.

20th.—Is still better; pulse 96; no pain. The swelling is gone from both legs, and from the left iliac region. Is taking cod liver oil.

From this time she improved rapidly, and went out on the 3rd of February quite well.

Dr. Sieveking has made the following remarks on the case:—

This case was one presenting several points of considerable interest. There could be no doubt, from the day the patient first came under observation, that she was laboring under a severe attack of acute peritonitis; but the prognosis was one of peculiar doubt, on account of the manifest presence of tubercular deposit, in at least one lung. This naturally led to the opinion that the case really was one of acute tubercle or tubercular peritonitis; and as the patient appeared ill fed, and did not offer the characteristics of a person likely to resist the inroads of serious disease, the probability seemed to be that she would succumb. The issue, however, showed that the peritonitis had no immediate connexion with the lung symptoms. The latter did not develop into active disease; and although some cough was persistent throughout, no evidence of destruction of lung-tissue at any time showed itself, and the tubercular deposit remained quiescent. The peritonitis was of a more acute and severe character than is usually met with as a tubercular complication; and the considerable exudation of plastic lymph which took place in its course gave a further color to the view of its being of a different origin, and running its course independently of the pulmonary affection. The marked effect of the leeches, and subsequently of the mercurial inunction, in subduing the inflammation and its products, also appears to countenance this view. We are thrown back upon the ovaries to account for the cause of the disease; and it seems probable that an irritation proceeding from these was the immediate cause of the peritonitis. It sometimes happens that an ovum, instead of passing at a menstrual period along the Fallopian tubes, drops into the peritoneal cavity, and there excites a more or less severe attack of inflammation. That may have been the case here. But whether this be the correct explanation or not, the review of the history, with a knowledge of the course of the disease, leads to the belief that we must look to the ovaries as a cause of the peritonitis.

An important complication took place as the patient was recovering from the peritonitis, and appeared to jeopardise her life, after the urgent inflammatory symptoms had abated. It will be observed that there was much residuary swelling in the left iliac fossa. Suddenly one day the entire left leg became swollen and painful; there was intense pain and tenderness in the bend of the knee; the whole limb was much enlarged, the cellular tissue œdematous, but not like the œdema of anasarca, the skin being of a dead white, and tense. No pulsation could be felt in the groin. There were no symptoms of lymphangivitis; and it was clearly not a case of local inflammation of any kind. The only explanation to be offered was that the state of the limb was due to interference with the circulation in the limb by the products of inflammation within the pelvis. The arrest could not be due to embolus, or the detachment of a clot of fibrin from the heart; partly because there was no endocarditis, recent or ancient; and, moreover, embolus does not block up the main artery of a limb. Arteritis could scarcely take place so suddenly, and would not induce swelling of the entire extremity at once, so as to prevent the artery itself from being traced; and the course of ordinary phlebitis is also of a slower and more consecutive character in all its symptoms. It seems reasonable, therefore, to conclude that the exudation within the pelvis (which even to external examination was palpably large) was of such magnitude as to involve and enclose and compress the vessels of the extremity. Fortunately the favorable termination of the case rendered it impossible to verify the circumstances to which the œdema was attributable. The constant application of hot fomentations in various forms, coupled with internal remedies calculated to promote absorption and to support the strength of the patient, established a perfect recovery, so far as the primary peritonitis and its secondary results were concerned; and, as the tubercular disease was not lit up into a conflagration, the patient may now be considered in as good a condition as before her illness, provided her domestic arrangements are such as to enable her to enjoy the necessary rest, food, and comfort.

## CHARING-CROSS HOSPITAL.

### SKIN CLINIQUE: EXTENSIVE CHLOASMA RAPIDLY DEVELOPED.

(Under the care of Dr. TILBURY FOX.)

A YOUNG MAN, about twenty-five years of age, presented himself on the 14th of January, complaining of a rash which he had had nearly six weeks. He stated that he first felt itching about the chest, and after a few days noticed some spots "all over him." On stripping him it was seen that the entire upper part of the chest and back was pretty uniformly stained light brown. The surface felt somewhat harsh and dry on passing fingers over it, but there was no scaliness. Below the level of the ensiform cartilage the discoloration was somewhat less extensive; but the skin was thickly covered over by circular spots whose circumference was about equal to that of a split pea; they were slightly raised, very well defined, and felt rough to the touch. The discoloration was as it were sprinkled over the whole of the belly, the separate spots being very closely packed together, just sufficiently apart, in fact, to show that they were distinct, and that there had been a *general* development of the little patches nearly simultaneously over the whole of the front of the trunk, and that they had already coalesced in the upper part, and were about to do so elsewhere. On the back the discoloration was perhaps less distinct than in the front. On the arms, from top of deltoid to the bend of the elbow, the discoloration on either side was pretty complete, and below the elbow bend, for a distance of two or three inches, the disease presented the same appearance as in the lower part of the belly, and extended along the inner and front part of the thighs, from the groin to below the knees, in like manner. It was remarkable that so little roughness existed with so extensive a development of disease. One of the chief points of interest was the departure from the ordinary mode of onset by the rapid production, evidently of a host of minute foci scattered generally over the trunk, and apparently the upper part of the limbs, and their speedy coalescence, so as to give the idea of a "general rash."

This fact, coupled with the comparative freedom from pruritus, the circular character of the eruption, and the comparative absence of branny desquamation, led Dr. Fox to point out how frequently chloasma was and might be mistaken for syphilitic discoloration; and he mentioned a similar case, in which a gentleman had been invalided home from India under the idea that the disease was obstinate secondary mischief, mercurialisation having failed in effecting its removal. The diagnostic features of the two diseases Dr. Fox contrasted thus:—

| *Syphilitic stains.* | *Chloasma* |
|---|---|
| 1. Color brownish. | 1. Fawn-colored. |
| 2. History of syphilitic infection. | 2. No syphilitic history, perhaps. |
| 3. Preceded by roseolous rash and slight pyrexia, with congestion of the fauces, &c. | 3. No antecedent erythema as a rule, no pyrexial symptoms, no throat congestion, &c. |
| 4. Seated on all parts of the neck, breast, face, forehead, and arms. | 4. Parts covered by flannel generally. |
| 5. Absence of itching as a rule. | 5. Itching troublesome, increased by warmth. |
| 6. Circular form of the stains, varying in size from that of a four-penny to that of a two shilling piece. | 6. Patches generally of irregular shape, often of large size after the disease has existed a while. |
| 7. Desquamation absent. | 7. Desquamation usual; branny scales can always be scraped away. |
| 8. No elevation. | 8. Slightly elevated. |
| 9. Other forms of secondary disease often present. | 9. Eruption uniform. |
| 10. No parasite elements found. | 10. Parasitic elements easily detected. |

Mistake is most likely to occur in cases of general chloasma. Syphilitic subjects, it must be remembered, may be affected by chloasma coincidently with secondary manifestations. The confusion, however, of syphilitic stains with chloasma, Dr. Fox stated, was too often a matter of mere carelessness, and was generally due to the neglect of microscopic examination. From every patch of chloasma branny scales might be scraped off, and the parasite (*microsporon furfur*) detected. In the case under notice the fungus was at once demonstrated. It existed in abundance, and somewhat more in the mycelial than in the sporular form. There were very few of the characteristic "heaps" of spores to be seen. The mycelial threads were well developed, freely branched, and full of granules. Dr. Fox ascribed the rapid spreading of the disease mainly to the active outshooting of the mycelium beneath the epithelium in all directions. The treatment consisted in removing the cuticle as far as possible by alkaline baths, and then using freely a solution of carbolic acid, gradually increasing it in strength.

## HOSPITAL OUT-PATIENT PRACTICE.

### ULCER OF THE LEG.

We could scarcely have chosen a more common surgical ailment than that which is the subject of the following notes. Comparison of the modes of treatment adopted for it by the authorities whose names are here collected cannot fail, we think, to be of much interest to the profession.

#### ST. BARTHOLOMEW'S HOSPITAL.

Mr. Thomas Smith adopts the following classification as most convenient for clinical teaching and therapeutical purposes. He believes it to be of first importance to decide whether an ulcer be of syphilitic origin, or whether it be due to other causes, such as anæmia, insufficiency of food, debility, old age, eczema, varicose veins, hypostatic congestion, or local injury. The diagnosis of syphilitic ulcers he grounds on the antecedents of the patient; on the position of the ulcers, usually above the middle of the leg; their number, often more than one, or if one only is open, scars of former ulcers are usually to be found. The shape of the sore is taken into account—usually crescentic or circular, if syphilitic; the condition of the surface of the ulcer, which, unless healing, looks rotten, and generally contains a core formed of dead tissue, while the edges and environs of these ulcers are often stained a dirty tawny red.

As regards prognosis, Mr. Smith's experience is that in a general way syphilitic ulcers are the most amenable to treatment. That the depth of an ulcer (within moderate limits) more unfavorably influences the chance of recovery than its extent; that ulcers over the subcutaneous surface of the tibia are more difficult to cure than those situated over the fleshy parts of the leg; that those sores that are based on the periosteum are well-nigh incurable; and that ulcers involving the whole circumference of the limb are incurable in out-patient practice.

*Treatment.*—Iodide of potassium and bark internally, together with black wash or red precipitate ointment locally seldom fail to cure syphilitic ulcers. Inflamed, irritable, or painful ulcers in feeble people are treated with bark or quinine, and by the application of morphia ointment or water-dressing to the sore. The same state of the ulcer in free livers is found to be benefitted by the use of purges in addition to the above treatment. *Healing ulcers* are treated with water-dressing or simple cerate. For chronic or callous ulcers, the red precipitate is found to be a serviceable local application, while the constitutional remedies vary with the state and circumstances of the patient. The *cold* ulcer, as described by Mr. Paget, is treated by tonics, with opium locally and internally. *Varicose* ulcers are treated on general principles; the heroic but successful treatment by ligature of the veins is not carried out, on account of its unsuitability to out-patient practice. Bandages are employed in the treatment of all ulcers. Sloughing sores, which are now of rare occurrence, are at once admitted into the hospital.

### GUY'S HOSPITAL.

Mr. Bryant has made the subject of ulcers of the leg one of the special topics of his clinical instruction, having had during the last few months* a series of cases under his care illustrating the chief forms of such an affection. He practically divides all ulcers into the cellular membranous and cutaneous sores: the former being invariably due to some general or constitutional cause; the latter, probably, to some local one. In the treatment of the cellular membranous sore, the rememedies must be directed to the constitutional cause or cachexia which induced the disease, tonics being invariably required, and, when syphilis is the origin of the affection, combined with the iodide of potassium. The local treatment in these cases is of secondary importance, water-dressing being in the majority of cases all that is necessary. In the treatment of the simple cutaneous sore a variety of measures are sometimes required; for an inflamed ulcer, which requires soothing treatment, has to be treated differently from an indolent sore, which needs stimulating; a sloughing sore, from excess of action, requires an opposite treatment to a sloughing sore due to a want of power. All these cases have to be treated upon ordinary surgical principles; for Mr. Bryant is apt to teach that there is no better barometric test of a patient's condition than the appearance of a sore: a healthy sore rapidly becoming indolent on a decline of the patient's powers, or sloughing, or any extreme depressing cause making itself felt; whilst, on the other hand, a weak or indolent ulcer rapidly puts on a healthy aspect on any improvement in the powers of the patient taking place. When a simple sore is inflamed, therefore, the local and constitutional symptoms are usually treated by opium lotion, and opium internally, with or without tonics. When a sore is indolent it is stimulated with nitric-acid lotion, or the terchloride of carbon lotion; and, if connected with syphilis, black wash. When a sore is sloughing from excess of action in the part, the constitutional irritability is allayed by opium, tonics, and stimulants: and when sloughing from excess of indolence in the sore, by local stimulating applications combined with tonics. When varicose veins coexist with the sores, bandaging the limb or strapping is, as a matter of routine, had recourse to, unless absolute rest can be maintained; and in all cases bandaging the limb is, as a rule, enforced. Any special treatment of ulcers Mr. Bryant looks upon as an impossibility, an ulcer, like an ordinary wound, requiring treatment adapted to the special cause or peculiarity.

### GREAT NORTHERN HOSPITAL.

Mr. Gay, who has made the subject of ulcers of the leg, with their most commonly allied disorders *varicosity* and *discoloration of the skin*, the theme of the late Lettsomian lectures, founds their treatment upon a classification differing materially from that of most writers, but least from that of Mr. Syme. His classification has a purely pathological basis, and recognises three kinds of ulcer —namely, the *idiopathic* the *venous* and the *arterial*. His treatment is concurrently simple.

The first is the ulcer that, traumatic or not in its origin, depends for its persistance upon local but not abnormal peculiarities in the vascular system in that portion of the limb in which ulcers almost invariably form—namely, between the ankle-joint and the calf.

An ulcer so situated, ever so simple, and in the healthiest individual, is very slow to heal on account of the inevitable tendency of the tissues involved to veno-capillary congestion and its consequences. But, beyond this, it is subject to modifications through the influence of the ever-varying conditions of the general health, as well as of constitutional taints, such as struma and syphilis.

Mr. Gay says that with this form of ulcer there are no morbid changes, essential to the existence of the ulcerative process to be met with beyond the immediate sphere of its activity. Its typical form is the "broken shin."

The treatment is simple:—

1. *General.*—Rest, with the elevation of the foot above the level of the pelvis.

2. *Local and constitutional.*—When painful and inflamed, topical bleeding by leeches, or scarifications tolerably deep *across* the edges; warm water dressing; moderate purgation, and opium. If the ulcer has become chronic and the base thickened, Mr. Gay recommends a slightly stimulant lotion—e.g., dilute nitric acid and opium; or blisters, with the cautious administration of iodine or mercury, if struma or syphilis appear to exert an influence on the sore. If there is general want of power, stimulants, tonics, and good nourishment.

There are ulcers of this class, however, which resist these methods of treatment—extensive superficial ulcers, with a subacutely inflamed base, and with clots of gummy, ichorous discharge adherent to its edges. Mr. Gay believes that this ulcer persists by the propagation of the ulcerative action from the decaying molecules to the new nucleated cells as they are evolved from the living tissues. Nothing short of the destruction of the surface will make such an ulcer granulate, and this is best accomplished by the solution of the pernitrate of mercury, once, twice, or thrice applied, at intervals of two or three days.

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* Mr. Bryant dividing his out-patient cases into classes of disease, and taking up every few months special classes of cases for clinical instruction.

A large number of ulcers are associated with varicose veins. From numerous dissections, and for other reasons, Mr. Gay doubts the alleged etiological relation of these disorders. *Remotely* the veins might have such a relation to the ulcer; but this, he thinks, is by no means clear. *Directly* they certainly have none, and tying the veins is of no real advantages to them.

There is a more severe form of ulcer, often coincident with varicosity, and as often without it, but very constant with discoloration—"*bronzing*"—of the skin, which Mr. Gay has traced to *obstruction*, by clot principally *either of the saphenous, or the deep venous trunks, most generally of the latter veins.* This is the "venous" ulcer.

Ulcers of this class are moderately deep, secrete abundantly, often bleed, and are situated either on a portion of indurated skin, or skin rendered boggy by veno-capillary dilatation,—the "tissu spongieux," or "caverneux" of the French writer. Such ulcers will heal by rest and elevation of the leg; but not permanently. Free elliptical incisions along either side of the ulcer constitute the only treatment that can secure for them permanent cicatrisation.

The use of spiral bandages for the quasi "varicose ulcer" has been much extolled. Mr. Gay believes them to be useless, and the principle upon which they have been recommended, a fallacy. They have been supposed to supply the place of valves that have become inert by disease. Mr. Gay avers, in the first place, that varicose veins, as a rule, are not endowed with valves; and, secondly, that in veins in which they exist, valves do not, as these bandages do, *interrupt* the current.

The "arterial" ulcer differs materially from the former kinds of ulcer. It is the large, deep, cold ulcer, which often, with intervening islets of diseased skin, occupies the whole of the leg, from just below the knee to the ankle. As it deepens so it invades fasciæ, muscles, bones, and even the deeper vessels.

Mr. Gay has traced these ulcers invariably to disease affecting the coats of the deep arteries of limb, especially the anterior and posterior tibial. They are positively incurable by any means yet adopted; and amputation, excepting under exceptional circumstances *of a favoring nature*, is a very hazardous proceeding. One of the worst specimens of such an ulcer is now under observation in the wards of the hospital.

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### KING'S COLLEGE HOSPITAL.

The most numerous class of cases among the poor, according to Mr. Wood, is that of varicose ulcer. Usually placed a few inches above the inner or outer malleolus, and accompanied by a brownish-red, dry discoloration, or an eczematous desquamation of the skin around, these ulcers are often obstinate and tardy in healing, and are usually the most frequent in recurring. In the more acute cases of this sort, and those attended by heat and pain, Mr. Wood finds that by far the most convenient, comfortable, and effective plan of treatment is by the acetate of lead and glycerine lotion placed on lint next the sore, changed every night and morning, and surmounted by a wet bandage, carefully adjusted, and kept moist by being wetted from time to time during the day. This plan has the additional and valuable recommendation of necessitating the important adjunct of cleanliness of the part. If the pain be very great at night, five grains of the opium and soap pill are given every night, and the bowels are acted upon daily by a sulphate of magnesia purgative. When the heat and inflammation subside, which soon occurs under this treatment, the lunar caustic is applied twice a week to the edges of the sore, which is then strapped with soap plaster. Strapping, however, is found not to answer in cases attended with an irritable eczematous condition of skin, in which small and troublesome ulcers are apt to follow its use in other places chafed or galled by the strapping. In such cases the continuation of the lotion and wet bandage to the end of the treatment answers best, with the internal administration of an acid tonic and occasional warm aperients, and opium at night. In obstinate cases of this kind the administration of the solution of the arseniate of potash with quassia infusion, about half an hour after meals, seldom fails to produce a cure.

In sloughing and phagedenic ulcers, with congested edges, dark-red granulations, and sanious discharge, rest in the recumbent posture is indispensable in the treatment, with aperients, succeeded by tonics and opium administered internally. The local application from the first in these cases, in Mr. Wood's practice, consists of a solution of carbolic acid in glycerine-and-water, of the strength of about 3 or 4 per cent. of the pure acid. This is applied on lint, and covered with oiled cotton or silk and a light bandage. This has been found remarkably efficacious in cleansing the surface of indolent, ash-colored, sloughing granulations, as well in the more extensive sloughs, and in introducing healthy action and cicatrisation.

In simply indolent ulcers the local application of the chloride or sulphate of zinc lotion, in the proportion of 2 to 3 grains to the ounce, is of the most use. If the edges of the sore are thick, indurated, and callous, the caustic chloride of zinc paste applied to the edges has been found to induce a more even and healthy cicatrisation when the surrounding skin has not been too firmly bound down by induration.

In cases of irritable rupious, or serpiginous ulcer, with suspicion of a syphilitic taint, the fresh-made ointment of the red oxide of mercury is found, when it can be borne, the most speedily effective. It is usually combined with opium at bed-time, and, when other signs of syphilidæ are present, with the administration of iodide of potassium. If the pain be very great, and the above ointment cannot be borne, the fresh-made mercury ointment rubbed well up with the extract of belladonna, in the proportion of a drachm of the latter to an ounce of the former, applied to the sore on lint, is usually effective in allaying the pain, and inducing healthy action.

In some cases, attended with but little discharge, strapping with soap-plaster over the lint spread with this ointment, and left on for two days, is found convenient and comfortable. In cases with inflammatory redness, however, a wet bandage so applied is better.

In weak ulcers, with pale flabby granulations, Mr. Wood uses locally an aqueous solution of the perchloride of iron in the proportion of 2 or 3 grains to the ounce, with the internal use of the tincture of the same preparation. Mr. Wood has employed, as a useful adjunct to the treatment in those troublesome cases of sores placed just above the tendo Achillis, continually stretched and irritated by tension in walking, a high-heeled shoe, or temporary pad placed under the heel, until cicatrisation has fairly progressed. It must, however, not be continued too long, for fear of promoting permanent contraction.

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### ST. MARY'S HOSPITAL.

Mr. Norton endeavors to simplify the treatment of chronic ulcers of the leg by dividing them into three classes.—1st, inflammatory; 2nd, non-inflammatory; 3rd, those due to an existing local cause.

Under the first head, he considers those ulcers around which the integument is reddened, swollen, puffy, and tender to the touch, and which are invariably accompanied by constant pain, more or less severe, though the wound itself may be small, red, and dry, or, on the contrary, covered with large, red fungous granulations, or it may be even phagedenic in appearance. As a rule, there is but little suppuration in these cases. Moderate antiphlogistic remedies, coupled with anodynes, seem to be the most beneficial, such as the following pill, given twice a day for a time: Potassio-tartrate of antimony, one-sixth of a grain; powdered opium, one third of a grain; mercury pill, two grains; confection of roses in sufficient quantity. But it must be remembered that even this small dose of mercury is capable of producing salivation. Attention is paid to the bowels, which should be frequently relieved by an ordinary rhubarb draught. Locally, the treatment adopted is emollient, as a warm poultice sprinkled with laudanum, and in a few days changed, if necessary, to a bread poultice saturated with a lotion composed of solution of diacetate of lead, five minims; tincture of opium, half a drachm; water, one ounce,—applied at the natural temperature.

Under the second head, or non-inflammatory class, he places those ulcers which are accompanied by little or no pain, which have but little effect on the general health, and which, as a rule, have large anæmic or œdematous unhealthy granulations, covered by a thin puriform secretion, possessing no pretensions to the character of laudable pus. They may be surrounded by elevated tallowy edges; and the wound may be shallow or deep, and coated with a greenish, unorganisable lymph. These Mr. Norton treats with a lotion of carbolic acid (five grains to the ounce); but lately he has tried largely the treatment by exclusion of air, and for that purpose has applied pieces of tissue-paper, steeped in Dr. Richardson's styptic colloid, and accurately fitted to the ulcer; or a solution of mastic in spirit made into a paste, with trisnitrate of bismuth, and applied upon lint, kept in position by a strip of soap plaster, care being taken first to wash and thoroughly dry the wound. Each application has its merits, but the latter produces no smarting of the surface; on the contrary, by means of the anodyne properties of the bismuth, it subdues any nervous irritability. If no secretion remain upon the wound at the time of the application, the lymph effused from the granulations tends to become organized, and the process of healing is promoted.

Under the third head, Mr. Norton arranges those ulcers due to a persistent local cause, as varicose veins, or necrosis, the treatment of which depends mainly upon the removal of the exciting agent. The former are always accompanied by an enlargement of the superficial veins of the extremity, which, by obstructing the return of the blood, lessen the supply of nutriment to the part, and thus not only prevent the healing of an existing ulcer, but render the rest of the integument peculiarly prone to ulceration. The object here being to compress the superficial veins and regulate the circulation, Mr. Norton encircles the limb by strips of soap-plaster for some distance above and below the wound, and afterwards applies a bandage from the foot to the thigh.

Mr. Norton considers that total rest is the most reliable remedy for all ulcers, but it is without this valuable agent that the surgeons of the out-patient departments have to deal with the disease. As a rule, also, he finds internal medicines of but little avail, with the exception of purgatives and anodynes; and, as regards local applications, prefers the milder remedies, as calamine ointment, or a weak solution of carbolic acid, the zinc and resin ointments, and the stronger lotions, being too stimulating, irritative, or drying.

If the ulcer be connected with syphilis, five grains of the iodide of potassium are given three times a day; and if, as is frequently the case, the ulcer be surrounded by an eczematous or a scaly eruption, a weak lotion of diacetate of lead and glycerine is applied, the latter keeping the epithelium in a moistened state, and so preventing the irritation which is produced by the dry scales.

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### UNIVERSITY COLLEGE HOSPITAL.

Mr. Christopher Heath believes that an accurate diagnosis of each case of ulcerated leg is essential for its successful treatment, and that the hap-hazard plan of poulticing pursued by patients, and of applying the red nitric oxide of mercury ointment by chemists to every form of ulcer, is as absurd as it is common. Mr. Heath has long abandoned the use of ointments for lotions, but finds it worse than useless to prescribe lotions, unless the patient is *shown* how to apply them properly on lint covered with oil-silk; if merely *told* how to do it, the lint is usually cut larger than the oil-silk, or the latter is put next the skin. The best-practice is for the "dresser" to apply the dressing with water at the time, and the patient to use the lotion at the next dressing.

The commonest form of ulcer, particularly amongst married women, is the syphilitic. This fact is often not recognised, and ulcers are treated with ordinary stimulants for months unsuccessfully which heal in a few days under yellow wash (one grain of bichloride of mercury in one ounce of lime-water), and iodide of potassium internally. The ulcer is usually multiple, very irregular, and the skin around has a peculiar "worm-eaten" appearance. The ulcers commonly extend up the leg to the knee, and there may be thickening of the tibia. There is a yellowish-white surface to the sores, and a thin discharge exudes in considerable quantity. The scars of former ulcers are often apparent, and a history of frequent abortions is sufficient confirmation of the diagnosis, without going into more minute particulars. Mr. Heath has noticed that these ulcers are not so numerous at University College Hospital as at the Westminster Hospital, where the patients, as a rule, are of a lower order, but the proportion which they bear to other forms of ulcer is about the same at both institutions.

Ulceration about the foot is usually of this kind, and so also ulceration between the toes; and the only form these are liable to be confounded with, in Mr. Heath's experience, is that dependent upon scabies. Ulcer of the leg depending upon scabies is constantly confounded with ordinary ulceration, but requires specific treatment for its cure. The ulcers vary very much in size (this depending principally upon the time the disease has existed), and often have little to distinguish them from simple ulcer, unless attention is directed to the surrounding skin. Here evidence of scabies may be readily discovered, and probably also in other parts of the body; and nocturnal irritation will generally be found to exist. Mr. Heath never uses the sulphur ointment for any form of scabies; but, here as elsewhere, has had every reason to be satisfied with the sulphide of calcium lotion (Sulphur and quicklime, of each one ounce, boiled in a pint of water), provided the affected part is well washed with hot water, and the lotion applied whilst it is warm and moist, and then allowed to dry on. Two or three applications of this kind remove the scabies, and the ulcers then heal readily with water dressing.

The eczematous ulcer is very commonly met with, the disease depending usually upon varicose veins. As the eczema has existed for many months before it was scratched and irritated into ulceration, it will be necessary to adminster arsenic internally for its cure; and water dressing, with careful bandaging, may be applied to the leg. In obstinate cases of the kind, Mr. Heath has found weak iodine lotion (one drachm of the tincture to eight ounces of water), and in the later stage zinc ointment, very serviceable.

The ordinary varicose ulcer heals readily with a lotion of nitrate of silver (two grains to an ounce), and constant bandaging; but there is a form of irritable varicose ulcer (usually of small size and near the ankle) which is very difficult to cure, and in the treatment of which opium internally, in the form of compound soap pill (five grains thrice daily), is very useful.

The indolent ulcer of long standing, with thickened margins and a callous surface, is not very common in Mr. Heath's practice; but when it occurs it is invariably and rapidly cured by strapping the ulcer, and the leg for a short distance above and below it. The strips of plaster should be dipped in *hot* water before they are applied, as they thus fit the part much better than if merely warmed; and no other dressing is to be put upon the ulcer itself. A bandage is applied over the plaster, which latter requires renewal twice a week.

# Medical Societies.

APRIL—MAY.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

MR. SAMUEL SOLLY, F.R.S., President, in the Chair.

### ON A CASE OF VESICO-INTESTINAL FISTULA, FOR WHICH COLOTOMY WAS PERFORMED; WITH REMARKS.

BY THOS. BRYANT, F.R.C.S.,

Assistant-Surgeon to Guy's Hospital.

THE case was one which Mr. Bryant was asked to see by Dr. Habershon in Guy's Hospital in March 1867. The patient was forty-nine years of age, married, and the father of ten children. Twenty-seven years previously he had been in the West Indies, where he had yellow fever and ague. He returned home after five years in good health, and remained well for twenty-one years, or till two years before his admission, when he was seized with a violent attack of purging, and the passage of a quantity of blood. From that time he had passed at uncertain intervals slime and blood in small quantities with his motions. Eight or nine months since he passed some ounces of blood from the bowel, and seven months since he began to have pain across the hypogastrium and about the anus. Six weeks after noticing this pain, he observed flatus and a small quantity of blood and fæces pass with his urine. Of late he has suffered from difficulty in defecation, and frequent desire; but the act has not been associated with pain. His motions have, however, never been well formed since his illness. He has never had syphilis.

When coming under observation, his abdomen was natural; no swelling or tumour could be detected in it. Urine was loaded with feculent deposit, and the act of micturition was most painful. On making a local examination of the rectum, extensive ulceration of the lower bowel was readily made out, and an apparent stricture high up. This ulceration was, however, free from all adventitious deposit.

As the case appeared to be one of simple ulceration of the bowel, with a fistulous communication with the bladder, colotomy was suggested and performed on April 27th, with the view of affording a free outlet for the intestinal contents above the seat of the disease, and the hope that the fistulous vesical communication would subsequently close, and the ulceration of the bowel heal; the certainty existing that relief to the patient's suffering would be afforded for a time, if not permanently secured. The operation was performed without difficulty, Mr. Bryant making an oblique incision from above downwards and forwards, its centre passing across the middle of the external border of the quadratus lumborum muscle; the object of this incision being to give plenty of room. Immediate relief was experienced by the patient. In two days the urine became clear, and was passed without pain.

An abscess subsequently formed in the perineum which was opened by a deep incision; but this soon healed, and everything went on well till June 20th, when a change took place. Abdominal pains appeared in the region of the bladder, and some constitutional disturbance. On June 25th these symptoms were relieved by a sudden rush of fæces into the bladder, and their passage with the urine. The fæces were thin, and evidently from the small intestine. From that time the man's power gradually gave way, and he sank on August 27th, four months after colotomy had been performed, and two after the reappearance of fæces in the urine.

After death it was discovered that the bladder, large intestine, and small intestine communicated with an abscess at the base of the bladder, and that all signs of ulceration of the intestine had disappeared, with the exception of the fistulous opening into the abscess. The left kidney was completely disorganised, and was full of thick greenish pus, as were the ureter and bladder.

Mr. Bryant, in his remarks on the case, said it would be read with interest by those who had studied Mr. Holmes's paper in the last volume of the Society's "Transactions;" for it tended to support the conclusions which Mr. Holmes had drawn from the consideration of his own and other cases. It supported the conclusion "that ulcerated openings sometimes take place between the bladder and either the large or small intestine, many of which have no connexion with previous stricture of the gut, still less with disease; that in those cases in which the fæces discharged into the bladder came from the lower gut, and are consequently more solid, great suffering is produced;" and "that in such cases as are not dependent on malignant disease, colotomy, by diverting the fæces from the fistulous channel, may enable the latter to close, and thus relieve the patient's sufferings, and restore him to a condition of health and of comparative comfort." For in Mr. Bryant's case all these points were well supported: relief to the patient's sufferings was afforded, and the healing of the ulceration in the bowel followed the operation. Mr Bryant closed his paper by making some remarks on the value of the oblique incision over Amussat's transverse and the vertical of other surgeons. He believed it gave more room for manipulation in cases in which there is a strong probability the colon is empty, and may have to be looked for towards the pelvic brim; it takes the line of the nerves and vessels which pass from the lumbar region; it follows the ordinary integumental fold of a patient when assuming the recumbent position, and possesses all the other advantages of any other line of incision.

The President thanked Mr. Bryant for bringing this operation again before the notice of the profession. It had been too long neglected; in itself it was neither dangerous nor difficult. He thought that the oblique incision suggested by Mr. Bryant added much to the value of his paper. The great mistake in these cases was putting off the operation too long.

Dr. Habershon took the opportunity of correcting a slight mistake in Mr. Bryant's paper as to the condition of the man's lungs: there was in reality slight flattening and imperfect resonance at their apices. He could bear testimony to the great amount of relief afforded the patient by this operation.

Mr. Moore said that he did not rise to speak of the operation, which was now proved to be slight and satisfactory, but rather to make some suggestions as to the mode in which the opening into the bladder was produced. He had encountered certain cases which tended to illustrate this point. He thought there was first a small adhesion at one spot which subsequently became the seat of ulceration. Examples were frequent.

Mr. Christopher Heath said that matters were surely quite the reverse—that the ulceration came first, then the adhesion. This adhesion was merely a provision of nature for preventing death. Eighteen months ago a case came under his care in which, although the urine passed into the bowel, the fæces did not escape into the bladder. He used the rectal endoscope, and was surprised to find the large extent of gut thus displayed. Still no mischief could be seen even by it. In some cases the instrument might be of service as in the application of the actual cautery.

Mr. Nunn referred to the interesting case of a sweep who suffered so much from the pain of a similar opening into his bladder as to cut off his penis to relieve it. The case was brought before the Pathological Society. Mr. Nunn declined to operate.

Mr. J. Wood would ask a question. The patient was clearly strumous, yet there was no account of looking for tubercle. Was it the origin of the ulceration? As aiding the diagnosis of the site of ulceration, the nature of the discharge was important; this also bearing on the propriety of performing any operation. Colotomy at best was only a palliative; most died after it. There was a patient now under his care who had been ill two or three years, and by the constant and skilful use of the rectum bougie he had been able to secure closure of the opening. If the opening was low down, this procedure was best; if it was high up, it was a question whether colotomy should be employed. As to the method, he thought that the oblique incision was likely to expose more of the kidney than the whole one. This it was advisable to avoid. In other respects the incision was good. He attached no great importance to the cutting of nerves; they soon reunited, as in one of his cases where there was perfect union of the cut ends of the median.

Mr. T Holmes remarked that Mr. Bryant's case greatly resembled his, the patient dying in much the same way. There was no connexion with tubercle in other parts of the body so far as he was aware, but the post-mortem examination had been made out of town. Mr. Heath's observations were strictly borne out by his case, as there was a third ulcer in the intestine without adhesion. Mr. Wood remarked on the diagnostic value of the discharge. In his case this was well shown by the discharge of urine. He (Mr. Holmes) did not think much of the endoscope in such cases. The diagnosis was usually tolerably clear, but a reserved opinion ought to be given as to the danger of operation. One of his cases had done well; in another the patient died in forty-eight hours. He was willing to try the oblique incision, as he did not fear exposing the kidney.

Mr. Bryant, in reply, thanked the Society, and the President in an especial manner. He said the surgeon was often called too late to do any good. He thanked Dr. Habershon for his correction, and Mr. Wood for his criticism. There was no appearance of tubercle near the diseased spot; and if no greater objection could be brought against his incision than the fact of the kidney being thus exposed, he was rather pleased to see it than otherwise. He considered it important to separate cases of cancerous disease from those of simple ulceration, as colotomy was most likely to succeed in the latter case.

The President thought men should not be deterred by tubercle, the relief afforded was so great.

### CASE OF RECOVERY AFTER SUPPOSED PARTIAL DISLOCATION OF THE NECK, CAUSED BY THE BLOW OF A FALLING BARN-DOOR.

BY J. B. MARTIN, M.R.C.S. VENTNOR.

(*Communicated* by SAMUEL SOLLY, F.R.S., President.)

Emily M——, aged twenty-four, nurse, a stout, healthy country girl, of active habits and intelligence beyond the average of her class of life. Returned home on the evening of Monday, July 29th, with the children under her charge, between eight and nine o'clock, and having placed the little pony-chase they had been using away in the barn, was in act of closing the doors, when she perceived the left-hand door was falling, and likely to crush one of the children. She beat the child back with her hand; but before she could escape herself, the door (an oak one, 11 ft. high by 5 ft. 5 in. in width, weighing 480 lbs.) fell striking her on the side of the head, and carrying her with it to the ground, where it rested upon her. She was stunned at the time, but soon recovered her recollection. On assistance arriving, and the door being removed, she was totally unable to raise herself, being numbed all over, completely paralysed, and suffering from difficulty of breathing. When raised from the ground, it was observed that her head was bent forward, and slightly to the left side; and although herself aware of this, when told to lift it up, she had no power to do so A chair having been procured, she was placed in it, and upon her fellow-servant endeavoring to raise her head for her, she felt and heard something go into its place with a snap, soon after which she so far recovered herself as to move with assistance, though with great difficulty, into the house, when she became faint, and vomited slightly, but was able after a short interval to retire up-stairs to her bed. The faintness and nausea continued more or less during the night, with pain in the head and neck, and inability to move without assistance. The recumbent position was so painful that, with the help of her fellow-servant, she was moved into an armchair, where the head was supported by pillows, affording great relief.

She was seen for the first time about noon the following day. The countenance was pale, the expression somewhat stolid, and the features were swollen. She complained of pain in the head and neck; but what was most noticeable was a feeling of alarm lest the head should be moved. The surface of the head and neck, especially on the right side beneath the angle of the jaw, was morbidly sensitive, and there was a dread of even a hair being pulled. She was perfectly conscious, and, though exposed to a very strong light, there was no intolerance; the pupils were natural; the skin soft and cool; pulse 84, soft and regular; numbness of the right hand and arm, with partial inability to move them; slight ptosis of the right eyelid; difficulty in opening the mouth, being only able to protrude the tip of the tongue; could only swallow liquids. To be kept perfectly quiet; the head and neck to be well supported; the hair to be removed, except just in front; to apply an evaporating lotion to the head, and fomentation to the neck by means of spongio-piline.

When seen again towards the evening she was rather more comfortable, free from constitutional disturbance, and had had a short nap. The necessity of supporting the head and neck by means of a gutta-percha splint was considered, but abandoned, in consequence of the excessive tenderness of the surface, the heat it might produce, and its interference with the local application of the fomentation, which afforded great relief.

The night following the accident she retired, contrary to directions, to her own bed, but was obliged to resume the position in the chair, as she found the recumbent posture could not be borne. She continued gradually to improve from day to day, although it was not until the 3rd of August, five days after the accident, that she was able to obtain rest in bed, and then only when well supported by pillows. The position in the chair was still the most comfortable, and she was accustomed for some days after to rise as early as four A.M. to resume her place in it, retiring to bed at night for the sake of change. She was always most careful in raising herself, and refused assistance, for fear of having the head jerked.

Her improvement was progressive throughout, with the exception of a return of headache on the 14th of August in consequence of some excitement, but which soon disappeared. On the 21st, three weeks after the accident, she so far recovered as to be allowed to go down-stairs, and walk in the garden towards the cool of the day. The ptosis of the right eyelid had then disappeared, and the countenance had resumed its natural expression. The power over the right arm, although still imperfect, was gradually improving, and the only thing noticeable was that she carried her head in a stiff and formal manner, with a drooping forwards, a condition which continued more or less until the beginning of October, when it gradually passed off, and she recovered by slow degrees control over the motions of the head. The morbid sensibility of the surface of the head and neck, with pricking of the skin, and occasional pain under the jaw, continued more or less for a fortnight, and there was likewise up to that period a sense of falling backwards, if unsupported, or any attempt made to raise the head.

The treatment consisted in keeping the patient perfectly quiet, in the upright position, with the head well supported by pillows, low diet, an evaporating lotion to the head, and fomentation to the neck by means of the spongio-piline.

The author concluded the history of the case by some remarks as to its precise nature, accounting for the skull not having been fractured by the blow causing the accident on the supposition that the head must rather have been violently pushed aside than directly struck; and he alluded especially to the interesting physiological phenomena announcing temporary pressure or injury of the spinal marrow—namely, the difficulty of breathing, the exalted sensitiveness of the scalp and integuments of the neck, the general numbness, incomplete palsy of the right arm, and ptosis of the right eyelid, all of which symptoms gradually disappeared, leaving the patient free from any trace of injury, eleven weeks after the accident.

The President said that he wished to encourage the reading of single cases, and remarked on the value of the present one as bearing on the question of cutting down and trephining the vertebræ in fracture or dislocation.

Dr. Inglis narrated a case he had seen in Australia. A boy was thrown against a tree; he remained insensible for some weeks, and when seen by him certain of his vertebræ seemed to be slightly displaced. When he tried to twist his neck he fell down in a convulsion. He only saw him once.

Mr. Holmes remarked that the evidence as to displacement in the case before them was rather weak. He had seen one where the last dorsal was separated from the first lumbar vertebra. No great force was needed for their reduction, but the patient died of grangrene. He held to extension, rather than to operation.

The President said his observations applied rather to cases of fracture than to those of dislocation.

### INFANTILE REMITTENT FEVER, ERRONEOUSLY CALLED TYPHOID.

By J. Brendon Curgenven, M.R.C.S Etc.

The author observed that the points of analogy between typhoid and infantile remittent were not so well marked as between typhoid and typhus, or scarlet fever and measles. The error of confounding the two diseases had arisen from the continued character of the fever in severe cases, the duration of the fever, the diarrhœa that exists in most cases, and the eruption that appears on a few.

Several English physicians had been misled by the writings of M. Rilliet, M. Barthez, and other French authors. "To M. Rilliet," says Dr. West, "we are indebted for a most elaborate inquiry into the subject, which shows so close a resemblance to subsist between the two diseases as must I think, remove all doubt with reference to their idenity. Medicine," he says, "has not been able to cut short the course even of their mildest forms......And it would tend," continues Dr. West, "greatly to the avoidance of errors...... if, for the future, we altogether discard the term infantile remittent fever from our scientific nomenclature, and speak, as many French writers do, only of *typhoid fever* in children."

The symptoms of typhoid fever in children, as given by Dr. West and Dr. Tanner, were related, and shown to correspond entirely with the symptoms of infantile remittent fever. They were—loss of appetite, listlessness, drowsiness, an exacerbation of fever at night with delirium, exacerbation also at 11 A.M. and 3 P.M., the remission being accompanied by a subsidence of most of the symptoms. In severe cases the remissions became less marked, and might be altogether overlooked, the fever then appearing continuous. There is mostly constipation at first, which is succeeded by diarrhœa, the stools being dark and offensive. There is pain and often tenderness in the abdomen; this is at the epigastrium, and not in the right iliac region. There is short hacking cough, with sibilus and rhonchus in the lungs. The rose spots are stated to appear in the second week; but, as Dr. West remarks, "they are often very few in number, and not infrequently are altogether absent." "The fever," he says, "cannot be considered as passed before the thirtieth day. The convalescence is slow, and it is often prolonged for months." The right course to follow in the treatment, we are told, "is to carry the patient through an affection which we cannot cut short, with as small an amount of suffering and danger as possible." Diluents, laxatives, alteratives, leeches to the abdomen and the head when the symptoms so indicate; tarter emetic, and opium; blisters to the occiput. In convalescence it is said that "tonics either do no good, or are actually injurious by rekindling the fever."

One of the most important features of the disease is the temperature of the body, which falls quite, or nearly, to that of health between the exacerbations; and, when such is the case, the disease is not, nor can it be, associated with continued fever or typhoid, in which the temperature is above that of health, and continues so with but slight variation through the whole course of the disease.

The characteristic symptom of the disease is the remission of the febrile symtoms. This may occur once, sometimes twice, and even three times, in the twenty-four hours. The period of remission varies in its duration and in its period of accession. The remission may last for six or twelve hours, or its period may be so short as to escape notice; and the fever presents then the appearance of continued fever or typhoid. The disease in severe cases passes to this state at once, and is thus easily mistaken for typhoid or typhus, as the abdominal or cerebral symptoms most predominate. In mild cases the nightly fever is unaccompanied by delirium, and may escape notice altogether, the gastric symptoms or the cough alone attracting attention, the ailment being then regarded as arising from gastric derangement or brochial congestion, as one or other of these symptoms predominates.

While the symptoms point to malaria as the cause of infantile remittent, the result of the treatment of the disease by quinine fully confirmed the views of the author. He related eleven cases of variable severity, in which large doses of quinine at once arrested the symptoms, and the children within a few days became convalescent. All these cases occured in a new, well-drained district, in the month of March, 1867, with the exception of the eleventh, which occured in October. The district is remarkably free from typhoid fever, the author not having had but one case there during eleven years, and that was in a young lady who was brought home from Worthing ill with the disease. He believes typhoid to be more rare in children than is commonly supposed, that disease occuring more frequently between the ages of fifteen and thirty years. He does not deny that typhoid occurs in them; but the typhoid poison more frequently produces in children a fatal diarrhœa.

Infantile remittent is caused by a malaria in the spring and autumn months, the same malaria that, in adults, gives rise to various masked forms of malarial disease, such as paroxysmal cough, remittent sickness, diarrhœa, neuralgia, &c. The adult may, in fact, have one or more of the symptoms of the disease, but in them the cerebral symptoms and the fever are much less marked than in children.

Dr. Webster said that when he was physician to a medical institution in Westminster, nearly forty years ago, remittent fever in children was a very common affection. He agreed with the author of the paper as to the symptoms which it presented, and was of his opinion also that it differed essentially from typhoid or continued fever. The remissions which he had observed were often quotidian, but varied in different cases. It was more frequent in spring and autumn. He had always considered that it was dependent on malaria. Westminster was damp and low, and when the wind was in the south-west the complaint was most prevalent. With respect to treatment, he had found the powder of bark, carbonate of soda, and powder of ginger, in small doses, the most efficacious, combined with the occasional administration of a mild purgative.

Dr. Hillier differed entirely from the views of the author, and considered the acceptance of them would be going back full twenty years. The symptoms and post-morten appearances were the same in what was called infantile, remittent, and typhoid fever, or *gastro-enteritis*. He doubted, however, if all the cases related by the author were typhoid; some of them appeared to be instances of pneumonia, others were cases of malarial poisoning assuming the intermittent character, and were cured by quinine.

Dr. O'Connor considered none of the cases related were instances of typhoid fever, but cases of pneumonia and other diseases which had been incorrectly diagnosed by the author of the paper.

Dr. Weber did not know what was the real meaning of remittent fever in children; some of those so called were cases of intermittent, and some cases of typhoid fever; some were complicated with pneumonia, some with tuberculosis. In Germany they did not give a distinct name to a train of complex symptoms, which might arise from very different causes. Several different diseases had been classed by the author under the name of remittent fever.

Dr. Habershon said the author was quite able to detect a case of pneumonia when he saw it. He thought the paper valuable as showing the success of the use of quinine in certain cases of local congestions, in which it was not generally considered to be of service.

Dr. Wynn Williams mentioned that when the underground railway was in course of formation, cases of intermittent fever in children were very common; quinine was found to be the best remedy.

Mr. Curgenven replied.

### CASE OF A DOUBLE HERNIA IN A SINGLE SAC.

BY HENRY LEE, F.R.S.C.,

Surgeon to St. George's Hospital.

In this paper the particulars of a case were related in which during the operation for hernia, two openings were discovered between the sac and the peritoneal cavity. These openings both existed in the neck of the sac at the internal ring. It was supposed that the testis, which had not descended on the side of the hernia, had lodged at the internal ring, and that, by its pressure on the one hand, and the pressure of a truss on the other, adhesions had been established between the two layers of the original hernial sac opposite the most projecting part of the testis. On each side of the adhesion so formed, a fresh hernial protrusion had, it was thought, occured, so as to present two distinct herniæ in one sac. One of these herniæ, when the patient was first seen, presented a decided impulse upon coughing, which led to the belief that no operation would be required. It appeared, however, subsequently, that the second hernia was strangulated at the time. The symptoms were all relieved by the operation.

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## PATHOLOGICAL SOCIETY OF LONDON.

MR. SIMON, F.R.S., President, in the Chair.

Dr. Moxon exhibited a specimen of

### EVERSION OF THE SACCULUS LARYNGIS.

The specimen was the larynx of a patient who died at Guy's Hospital of cancer of the stomach. It was not noticed that his voice was remarkable in any way. Dr. Moxon often spoke with him, and his voice was always such as not to attract attention. On inspecting his body, there was what at first sight appeared to be a tumour hanging down over one of the vocal cords, semi-elliptical in shape, and rooted above in the anterior half of the ventricle of the larynx. On examining the tumour, Dr. Moxon found that it could be easily put up into the usual position of the sacculus of the larynx. When so replaced, it very easily fell out of its position again, and reappeared, as it is now seen, a pendulous larygeal tumour, very tempting to one skilled in the removal of laryngeal polypi.

The President asked Dr. Moxon if he had any reason to believe that the prolapse of the sacculus was congenital.

Dr. Moxon stated that the only indication of that was the laxity of the neck of the tumour.

Dr. Moxon next showed a specimen of

### EMBOLISM OF THE SPLENIC ARTERY THROUGH CANCEROUS PERFORATION OF ITS WALL.

This specimen was from the same body as furnished the everted sacculus laryngis which had just been shown. The patient's symptoms during life were singularly obscure; he generally denied having any pain, he never vomitted, but he kept his bed, and could not eat—not that food gave him pain, but he loathed it. One day he suddenly became faint, and died. On examining the body, the stomach and alimentary canal were found to be full of blood. At the opening in the artery there was no clot, but in the spleen there was a patch of the usual appearance of those resulting from embolism—*i. e.*, paler and firmer than the rest of the organ situate at its anterior margin, and sharply demarked by a darker border. The embolism was proved by the presence of a plug of pale fibrin in the artery that fed this part of the spleen. Putting these facts together, it seemed to Dr. Moxon most reasonable to conclude that the action of the cancerous ulcer during the perforation of the artery caused a lodgment of solid fibrin on the inner face of the artery at the spot attacked, and that this solid fibrin had been detached, moved on by chance into the vessel in which it was found in the form of an embolic plug.

The President stated that he knew of one case which bore on that of Dr. Moxon. There was much sloughing going on in the groin close to the femoral artery, and at a period when it was doubtful whether or not the artery would rupture at that spot: it temporarily became pulseless beyond the site of the inflammation.

In reply to a question by Dr. Murchison, Dr. Moxon stated that he supposed the opening to be due to sloughing as well as to cancerous erosion.

Dr. Moxon also showed a specimen of

### ULCERATIVE ENDOCARDITIS, WITH EMBOLI IN SEVERAL ARTERIES.

There were shown parts of many organs from a case of great interest which came under post-mortem inspection the day before the meeting. During life the case passed for one of typhoid fever; and although the disease was of another nature, yet its symptoms were very deceptively like those of typhoid fever. The patient was a young man aged twenty-one. When he was admitted at Guy's Hospital, it was at first doubtful whether his case was to be received as rheumatic or as typhoid. He had pains in the limbs, but these were not localised, and he could move the limbs easily; his tongue was dry and brown; pulse 110 to 116; his temperature 104°; and his bowels loose, the stools being regarded as characteristic typhoid stools. He died on Feb. 2nd. On inspection, there were ecchymotic spots on the chest and abdomen. Further ecchymotic spots were found on the pleuræ, pericardium, larynx, stomach, and intestines, and in the urinary bladder, giving the appearance associated with blood-poisoning; but the mesenteric glands were healthy, and the intestine, except for the spots, perfectly so likewise. The spleen was, however, large and soft, as in typhus; it weighed 18¼ oz., but it had in it two large pale wedge-shaped patches, of the kind called embolic patches. The aortic valves were much diseased; two of them were converted in appearance into heaps of rather loosely connected vegetations, and the common point of attachment of two of the segments was in an excavated state, as from ulceration. The excavated spot was in the concavity of the bend upwards that the mass must have made in the current during systole. The mitral valve had a similar localised patch of disease. The blood in the heart was liquid. The kidneys had numerous "embolic" patches in them, recent and semi-recent. The liver showed externally no signs of them, but on opening up the right hepatic artery a plug was found in its second bifurcation, this plug being adherent. The brain externally showed no change, but on following the Sylvian arteries there were found two plugs of fibrin in the right Sylvian, and though nothing unusual was to be seen on superficial observation of the brain at that part, yet a stream of water immediately showed, a decided softening there; the brain broke away at that part in a pulp, in a stream that had no effect on the rest of the organ. This case Dr. Moxon said, bore best the interpretation that the blood had been poisoned by the products of the endocardial ulceration. The state of the spleen, of the blood, and of the serous membranes, and the comatose state of the patient, together favored that view.

Mr. Nunn then exhibited a

### STOMACH RUPTURED SUPERFICIALLY.

which has been removed from a patient who had been thrown feet downwards from a height of sixty-six feet, owing to the giving away of a lift. He had compound fracture of one leg, and a simple fracture of the other, and died from apparently inexplicable sinking twenty-four hours after amputation. There was no vomiting of blood during life, although there were many lesions similar to that of the stomach along the intestinal tract. There was but little pain, although a good deal of sickness was present. He passed some black stools and a little blood on the second day.

Mr. Nunn also showed a

### RECURRENT TUMOUR OF THE BREAST.

Last session he showed a very large one, weighing four pounds, which had been removed from a young woman, aged twenty-six. That was the second removal. He now showed the results of a third growth. It extended into the thorax between the ribs, and caused partial absorption of a the sternum. There was no other disease of the body. Referred to Committee.

Mr. Nunn likewise brought forward some

### FUSIBLE URETHRAL CALCULI.

removed from the perineum of a patient who said he had passed scores such.

Mr. Pick exhibited and described an

### ANEURISM OF THE HEART.

removed from the body of a tailor aged thirty-one. He had suffered from a cough for two years. The heart was large, weighing twenty ounces; its surface was rough and its ventricles dilated and lined with a sort of fibrous membrane. On the right side, below the semilunar valves, was an aneurism, with an opening the size of the point of a finger, partly closed by fibrin. In the septum was a sac containing much fluid blood, and communicating with the aorta and right auricle.

Dr. Dickinson showed some

### VERY SOFT RICKETY RIBS AND STERNUM

removed from a child aged two years. It had died suddenly, while undergoing a stethoscopic examination, probably from the pressure on the chest. It suffered from pneumonia, and died without a struggle.

The President confessed to a degree of uncertainty as to the cause of death. Position had, no doubt, something to do with it, but it was questionable whether apnœa was the cause.

Mr. Croft remembered a case in which, when operating for harelip, the child swallowed a few drops of blood, and looked as if dead. He turned it, removed the clot, and the child did well.

Dr. J. Ogle had heard of one curious case, that of a child laboring under cyanosis, who, when tossed up into the air by its father, came down dead.

Dr. Moxon spoke of a man who was taken from a public-house, and was living when brought to the steps at Guy's, but who died without a struggle before he could be seen. A large piece of beefsteak was found in his throat.

Mr. I. Brown suggested that the case was similar to one of overlaying, as when a child died from its mother laying her arm on its chest.

Dr. Cholmeley exhibited a

### CIRCUMSCRIBED CEREBRAL ABSCESS.

removed from a young woman who came into the

Great Northern Hospital in an insensible condition. There was no paralysis and no rigidity. Her pulse was 70, and not perfectly equal; the respirations over 20, and thoracic. She could not swallow, and complained of headache, and pain in the joints. She suddenly became unconscious, and soon died, death not being preceded by a convulsion. Dr. Cracknell examined the body, and found the surface of the left hemisphere of the brain pulpy at one spot, and the left anterior lobe of the cerebrum full of fluid.

In reply to Risdon Bennett, it was stated that the petrous bones were not examined, but that they appeared healthy externally.

Mr. Kelly showed an

### ABNORMALITY OF THE KIDNEYS.

there being two on the right side and none on the left. They were placed the one above the other, the right being uppermost.

Dr. Sutton showed a

### RUPTURED ABDOMINAL ANEURISM FORMING A FALSE ONE.

The patient, a man aged thirty-one, came under the care of Dr. H. Davies, and maintained that he had been in good health up to eight weeks before his admission, when he was squeezed by a cart, after which he complained of pain. This went away, but again returned, and he was obliged to be admitted into the London Hospital. The tumour was made out, but was supposed to be an aortic aneurism. After death no blood was found in the abdomen; all was behind the peritoneum.

Dr. Sutton exhibited some specimens of

### DISEASED BRONCHIAL GLANDS

removed from a patient under Dr. Risdon Bennett. The young woman, aged twenty-three, was well grown and plump, but pale. She complained of pain in the chest. After death, the left lung was found to contain many abscesses, and no healthy tissue; its bronchus was occluded by the diseased mass. The right lung was healthy.

Dr. Sutton also showed an

### ANEURISM OF THE PULMONARY ARTERY.

occurring in a man aged forty, the subject of phthisis, and who had spat much blood. The pleura was thickened below it and at the base of the right side. The cavity contained a partly decolorised clot. The rest of the lung was tubercular.

Dr. Green remarked that it might be a dilatation of the pulmonary artery in a tubercular cavity.

Three reports were read: one on Mr. Bryant's peculiar tumour of the scalp, for which the term "periangioma" was suggested; another on Dr. M. Mackenzie's case of epitheliomatous ulceration of the larynx; and a third on the clot found in the heart shown by Dr. Church, which was pronounced to have been probably formed during life.

Dr. J. Ogle exhibited—

### 1. EXTENSIVE SOFTENING OF THE LEFT HEMISPHERE OF THE BRAIN; PLUGGING OF THE UPPER PART OF THE INTERNAL CAROTID ON THE SAME SIDE; PECULIAR TUNNELED CONDITION OF THE PLUG; PECULIAR ODOR FROM THE BODY.

The patient was a plumber, aged fifty-two, with a blue gum line, and was admitted into St. George's Hospital, under Dr. Ogle's care, on the 2nd of October last, in a heavy, stupid, and half-imbecile state, with remarkable "slowness of speech" when roused. There was a most offensive foxy or mouse-like smell from the body, evidently from perspiration, which was considerable, and this continued in spite of baths and washing, &c. Two days after admission he had a "fit," and became insensible, and completely hemiplegic on the *right side*. He died on the 11th. After death nearly the whole of the centre of the left cerebral hemisphere was found to be broken down and softened, and the left internal carotid, just before its bifurcation, was blocked up by a fibrinous plug, very adherent to the walls of the vessel. The plug was perforated or tunneled by an opening which easily allowed the passage of a bristle. The auricular surface of the mitral valve of the heart was beset by old firm adherent fibrinous deposits, as were the chordæ tendineæ of the left ventricle to some extent. The kidneys were in an early state of granular degeneration.

### II. CARCINOMATOUS (ENCEPHALOID) DEPOSITS OCCUPYING THE LUNGS, THE HEART AND THE MEDIASTINAL GLANDS.

Dr. Ogle presented this specimen by the desire of Sir Thomas Watson, who had seen the patient during life. The morbid deposit existed in the form of small rounded masses in the lungs, and, on the surface of the heart, presented the appearance as if melted wax had been poured on the organ. The chief interest lay in the symptoms, physical and general, which were rather of pulmonary phthisis than anything else. Eventually anasarca of the left arm and hand came on before death.

Mr. Moore remarked that such were often connected with the thymus, and suggested the propriety of looking for the elements of that gland in the structure.

Dr. Ogle then described a case of

### SOMEWHAT SUDDEN DEATH IN A PATIENT SUFFERING FROM ASCITES; RUPTURE OF ONE OF THE AORTIC VALVE-FLAPS; FIBRINOUS DEPOSITS ON THE VALVES.

The patient was a man of middle age, who had lived an intemperate life, and came into the hospital with ascites. On the day after admission he had a shivering attack, attended by great heat of surface and increased action of the heart. No cardiac bruit could be found on examination. On the third day after admission a bruit was detected, and he died on this day. Under the lining of the ventricles ecchymosis of blood was found. The spleen was very soft, and the lungs condensed and lacerated at the posterior and lower parts. Large and firm fibrinous masses were firmly adherent to the aortic valve and flaps, and one of them presented a thin pouch formed by its dilatation; this had given way during life. The liver was very considerably enlarged and cirrhosed.

Dr. Church showed a specimen of

### CANCER OF THE BRAIN,

removed from a woman who had been found insensible in the streets and brought into St. Bartholomew's Hospital. She had nine fits in three hours after coming in, and died in seventeen hours. Her urine was albuminous. In the left optic thalamus was found a rounded mass, bluish and vascular, projecting into the cavity of the third ventricle. Another and a smaller one was found in the right crus; around this there was some hæmorrhage, but little round the other. The brain was slightly vascular. Referred to Committee.

Dr. Murchison showed a specimen of

### CANCER OF THE STOMACH

which had been characterised during the life of the patient by the absence of all the ordinary symptoms. There was only emaciation and paroxysmal pain. There had been no vomiting, and neither constipation nor diarrhœa. The tumour was obscure. A week before death the patient passed a large quantity of blood by mouth and rectum. After death the stomach was found to be extensively affected, but neither orifice was implicated, accounting for the absence of more marked symptoms. The hæmorrhage had arisen from sloughing.

The same gentleman next proceeded to bring before the Society a highly interesting specimen of

### ACUTE ATROPHY OF THE LIVER.

During life the patient had a brown tongue, and was delirous, as in fever, but was not much jaundiced, and had been in good health up to within three or four weeks of the date of admission. When in hospital there were observed vomiting and purging, and diminished area of hepatic dulness. There was no leucin or tyrosin in the urine. The liver was greatly reduced in size, weighing only 27 or 28 oz. Its right lobe was softened, but the left was healthy; its lobules had nearly disappeared. In substance it was soft, but the hepatic cells were not disintegrated, as they are in ordinary fatty disease.

Dr. Leared had heard of a case somewhat similar to this.

In reply to a question by Dr. Weber as to the etiology of the atrophy, Dr. Murchison stated that the patient had no syphilitic history, that the age was twenty-two, and that the health had been good up to the date of seizure.

## OBSTETRICAL SOCIETY OF LONDON.

Dr. Hall Davis, President.

Mr. Spencer Wells exhibited a Multilocular Cyst of the Left Ovary, which he had removed a few hours previously, having removed the right ovary of the same patient more than six years ago. After the first operation the patient had recovered perfectly, and enjoyed good health until last summer, when the abdomen began again to increase in size.

Dr. Brunton exhibited a Placenta showing fibrinous deposits.

Dr. Wiltshire exhibited a new Utero-vaginal Douche, which, by an adaptation of Dr. Richardson's well-known india-rubber balls, afforded a steady and continuous current. The nozzle of the apparatus is so constructed that several different tubes and a rose, which have been devised by Dr. Wiltshire, may be applied to suit the special rerequirements of a case; thus, besides the usual vaginal and rectal tubes, there is provided a long and very flexible catheter for the bladder, or for sinuses, and a tube for washing away tenacious mucus from the interior of the cervix uteri, or for injecting the uterus.

Dr. Langston exhibited an interesting specimen of Monstrosity.

Dr. Playfair read a paper

### ON CARDIAC APNŒA AFTER DELIVERY.

In a former paper the author stated that he had hazarded the suggestion that certain anomalous cases occasionally met with after delivery, characterised by all the phenomena usually ascribed to embolism, but in which the patient eventually recovered, might really depend on the formation of a coagulum in the right side of the heart and pulmonary arteries, which eventually became absorbed. The author referred to three cases of the kind which he had formerly published, and gave full details of a fourth case which had since come under his observation. He proceeded to give his reasons for assuming that coagula were as capable of being absorbed when deposited in the right side of the heart as in other vessels, and referred to the frequency with which the latter event takes place in the peripheral venous system. He next showed how cases of this kind had been overlooked and misinterpreted, quoting cases of the latter kind from published records, and concluded by making some observations on the symptoms and treatment of the disease.

Mr. Spencer Wells concurred with Dr. Playfair in the belief that cases such as he had described were far from being uncommon. He had published accounts of cases where the formation of clots in the right side of the heart had been watched during life and found after death. In other cases patients had recovered whose symptoms could only be explained by the deposit of fibrine and its subsequent disintegration and removal. Whenever the blood was overcharged with fibrine, the power of the heart enfeebled, and the temperature of the body high, coagulation of blood and deposit of fibrine was to be feared. It was a common cause of death in traumatic peritonitis, and in pyæmia fever and septicæmia after operation or injury. The symptoms were very characteristic in all cases: great oppression about the chest, the patient filling the lungs with air by deep inspirations, and yet wanting breath; the lungs getting plenty of air, but very little blood; rapid feeble action of the heart, and gradual loss of the first sound. In one case, seen recently, Dr. Richardson had pointed out that although the first sound was faintly audible on the left side of the heart, it could not be heard on the right side, while the second sound was distinct on both sides. The treatment by carbonate of ammonia, which acts by keeping the blood fluid, combined with stimulants, was properly the best.

Dr. Graily Hewitt believed, with Dr Playfair, that coagula in the heart were the cause of the symptoms noticed in most of these distressing cases. Not long since he was called to a case in which, however, he could only attribute the occurrence of the symptoms—severe pain in the cardiac region, distress as regards respiration, and pulselessness—to shock. The case was one in which the removal of an adherent placenta had been attempted, and for upwards of two hours death was every moment expected by himself and the gentlemen in attendance. Finally, after administration of much stimulant by mouth as well as by rectum, the patient rallied. The operation on the uterus had, he believed, given rise to shock; and in this instance he did not think coagulation in the heart had occurred.

Dr. Wiltshire asked, firstly, whether there had been any œdema of the body in the case Dr. Playfair had brought forward. It appeared to him that if the thrombus in the pulmonary artery had been of any size, and of more than very brief duration, there would necessarily be more or less œdema. Secondly, if Dr. Playfair could explain how the clot was disposed of. The process must be one of extremely fine molecular disintegration, or the particles would be arrested in the capillaries of the lungs, and grave consequences would ensue. Respecting the theory quoted by Dr. Playfair, that the cause of the coagulation of blood in the pulmonary artery is that it has there attained its maximum impurity, Dr. Wiltshire remarked that he thought that explanation quite inadequate, for it was well known that venous blood was not very coagulable, and suggested that it was more likely due to the admixture of the contents of the thoracic duct, which were of a healthy coagulable character, and which, moreover, being poured into the subclavian vein, had mingled with the venous blood just before its entrance into the right side of the heart.

Mr. W. Adams related the case of a lady, aged thirty, who was delivered of a living child on October the 12th, after a natural labour. She continued well until November the 3rd, when she began to experience dyspnœa after any exertion; her pulse ranged above 100, and on the slightest exertion reached 120 per minute. A careful examination of the chest could detect no disease of heart or lung. Perfect rest, a generous diet, and tonics, were prescribed for her, but the symptoms did not improve, and on two occasions, after ascending a flight of stairs, syncope occurred. On the 23rd of November, after walking slowly upstairs, another attack of syncope occurred, which terminated her life. A post-mortem examination showed the heart and lungs, as well as the other organs of the body, to be perfectly healthy, but the pulmonary artery was plugged by a firm fibrinous clot, which from its toughness and firm adhesion to the lining membrane of the vessel must have been days, if not weeks, in formation.

Dr. Protheroe Smith remarked that certain observations he had made on the inferior animals might in some measure illustrate the subject of Dr. Playfair's paper. In prosecuting experiments on transfusion of blood, he had been unfortunate enough in his first attempts to inject unwhipped blood into their veins, and kill two sheep; and the symptoms presented by those animals, as well as the post-mortem appearance, were analogous to those characterising the cases to which Dr. Playfair had alluded. Some time after the operation, the animals showed great prostration of strength, hurried respiration, and dyspnœa, terminating in death by asphyxia. The post-mortem examination showed in both cases, one of which lasted several days, a firm, dense, light-colored fibrinous clot, occupying the right ventricle, and projecting for some length into the pulmonary artery.

Dr. Playfair said that while fully admitting that shock was likely to predispose to this affection, he could not agree with Dr. Hewitt in thinking that some of the cases could be explained by shock alone. In most of them there had been nothing to produce shock; and the symptoms in the two states were entirely different. No one who had seen a case of the kind could fail to have been struck with the terrible struggle for breath which formed the most prominent symptom, while nothing of the kind is observed in true cases of shock. He had not observed any œdema of the limbs.

### ON TWO CASES OF INVERSION OF THE UTERUS.

### BY DR. TYLER SMITH.

After a few words on the rarity of this formidable accident, the author proceeded to relate the two cases which had fallen under his observation. In the first case, which occurred in the practice of Dr. Norton, of Bayswater, the author was summoned about two hours after the accident. The placenta had been separated, and the uterus returned into the vagina. No unusual traction had been exerted on the cord. The uterus was suddenly inverted a few minutes after delivery. Efforts had been made to reduce it in vain. The patient was in a state of collapse from shock and loss of blood. The pain had been excruciating. The patient was placed under the influence of chloroform, and, by a process of squeezing and upward pressure, reinversion was effected. Dr. Tyler Smith pointed out that in such cases the danger of separating the uterus from its pelvic attachments by the necessary upward pressure should be guarded against. With the left hand the inverted uterus was steadied through the abdominal walls, while the organ was manipulated with the right hand. The patient made a tedious recovery. The second case occurred in the practice of Dr. Walter Bryant, in a forceps case, at which the author was present. The inversion occurred suddenly, before any attempt was made to remove the placenta, and while the author had his hand over the fundus uteri. The patient had been delivered while under the effects of chloroform, and had not recovered sensibility. A little more chloroform was administered, the placenta was carefully peeled off from the uterus to reduce the size of the inverted mass, and the organ was then easily replaced, the patient having known nothing of the accident. In remarking upon the cases, Dr. Tyler Smith dwelt on the severity of the shock produced by inversion, and by the spasmodic strangling of the uterus by the os and cervix; and insisted on the necessity of prompt reduction under chloroform. He looked on the accident as caused, in a majority of cases, by an active reversed peristaltic action of the uterus, tracing its similarity to intussusception of the bowel, and its relation to hour-glass contraction and encysted placenta.

Dr. Protheroe Smith observed that it had not been his lot to witness inversion of the uterus immediately following labour. In one case, however, in which he had diagnosed chronic inversion of the uterus, another gentleman, believing it to be polypus, had attempted its removal by incision; but although, having discovered his mistake, he did not complete the operation, the patient shortly afterwards died of acute peritonitis. In another case which he had seen, many attempts to reduce the inversion had been made, and thirteen months had elapsed since the occurrence of the inversion at the time he first saw her. He, however, accomplished the reduction by means of a hemisphere of wood on a handle, by which the protruded fundus was compressed; and gradually, by the persistent efforts of Dr. Sanderson, Mr. Scott, and others continued for some hours, the rigid condition of the cervix yielded so as to enable him to effect the complete retrocession of the inverted uterus. In proof of the superiority of this operation over that of Mr. Cross of Norwich, he would further state that the patient had since given birth to two children. On both occasions there was considerable atony of the uterus in the third stage of labour, with hæmorrhage; and on the last occasion there was adherent placenta, and so little contractile power that the hand had to be held in the uterus for an hour before contraction ensued and hæmorrhage ceased. Notwithstanding this condition, in neither instance was there any attempt on the part of the uterus to reproduce inversion.

Dr. Priestley regarded Dr. Tyler Smith's paper as very interesting, and a valuable contribution to our knowledge concerning inversion. The author had advanced very good reasons to prove that an irregular and abnormal contraction of the uterus after delivery might produce inversion, and that this might take place spontaneously. Whether this hypothesis were true, or whether they accepted the explanation recently given by Dr. Matthews Duncan, he thought there were good grounds for believing that there were more ways than one by which inversion might be produced, and that besides the spontaneous cases there were others arising from injudicious management on the part of the attendant, or, indeed, produced inadvertently and unavoidably by the skilled obstetrician. It could very readily be understood how, in certain flaccid conditions of the uterine walls after the expulsion of the child, a very moderate amount of traction on the umbilical cord added to the weight of the placenta yet attached to the fundus might produce inversion. And besides the cases in which the uterus was turned inside out, as it were, by too violent pressure from unskilful hands, he was inclined to believe that in rare instances the most careful obstetrician might inadvertently produce slight indentation in the fundus uteri while exerting compression through the abdominal walls in cases of tardy contraction of the uterus, and where the shape and position of the organ were indistinct. The indentation once produced, the depressed portion would be seized by contracting fibres lower down, and might culminate eventually in complete inversion. It might not be possible in all cases to avoid such an accident, but the recognition of its possibility would suggest the desirability of making compression on a flabby uterus general, and not partial, and particularly not of such a character as might indent the fundus uteri. A class of cases of inversion not adverted to by the author, but which seemed to favor his view that uterine contraction was chiefly concerned in inversion, were those occurring in the unimpregnated uterus. Dr. Priestley detailed the history of two cases of this kind. In one the patient was an old woman, and the polypoid tumour formed by spontaneous inversion was successfully removed by ligature. In the other a fibroid tumour, nearly as large as a child's head, had so pulled down the fundus that the womb was completely inverted, and the large size of the swelling so completely filled the pelvic cavity that its attachments and relations above could not be made out. The inversion was not discovered until it had been pulled by midwifery forceps beyond the vulva, and it was then deemed best to push the tumour back into the vagina, rather than attempt any further operation at that time. The results had been that either from the pressure employed in pulling it down, or from some other cause, the troublesome discharges entirely ceased, and the patient was reported to be comparatively well.

After some further discussion, in which Dr. Rogers, Dr. Philips, Dr. Barnes, Dr. Greenhalgh, and the President took part, Dr. Tyler Smith replied, and the meeting adjourned.

# Editorial.

## MEDICAL EDUCATION.

It does not require much vision to see that our whole system of medical education will ere long have to be reconsidered. The prevailing dissatisfaction with it is only a portion of a larger dissatisfaction. We are awaking to the fact that good education of any sort is almost the rarest thing going; difficult to buy at any price. Where shall wisdom be found? is a question as hard to be answered now as it was in the time of Job: except that men have arrived unanimously at one negative opinion on the subject—that it is not to be found in the schools; that the art of teaching is, in point of efficiency, behind nearly every other art. It is astonishing that it should be so. There is a great love of knowledge abroad, and there is plenty of money to give in exchange for any knowledge conveyed. But there is no proportion between the general sense of the value of knowledge and the degree in which it is conveyed. We must leave the educationists of the country to deal with the general question. Our immediate concern is with medial education. It is as backward as any other branch of education that can be named. Men go through long years and complicated curricula of study, and shiver at the end of them on the verge of flimsy examinations, which are so inefficient that they are disowned by the authorities that are answerable for the health of our soldiers and sailors.

There must be some explanation of this. The acquisition of medical knowledge is not an uninteresting process, and the possession of it is not an unprofitable thing. Yet it remains true that nobody is satisfied with the existing arrangements for conveying it, or at least with the results of these. What, then, is the explanation? Where does the blame lie? Blame is seldom an absolutely concentrated thing. It is generally shared by more than one culprit. But there is often one culprit who stands out among the rest conspicuous in his guilt. And to judge from the deliverances of the best men who have recently spoken or written on the subject of medical education, there seems to be no doubt that the principal blame rests at head-quarters, with the natural heads and supervisors of medical education, with the men who stand on the watch-tower, and whose very business it is to test the material which is, so to speak, manufactured in the schools. There is an overpowering verdict against the test which is applied. And as in chemistry when faulty tests are applied faulty substances pass muster, so with the tests of education. The test being faulty and inadequate, the material brought to it is faulty. More than this, it is purposely faulty and defective—that is to say, the student knows the kind of thing that will be demanded of him, and be prepares accordingly.

We have no desire to reverse the verdict against the present more common examination. It is too consistent with what we have been saying for years past as strongly as we could. We can only rejoice at the authority and the eloquence with which it has been pronounced, and the unanimity with which it has been accepted by the profession. It remains to be seen what answer will be made by the examining bodies, and especially by that one most largely responsible in England for the lives and limbs of her Majesty's subjects. It must be apparent to everyone outside of these corporations that they cannot be allowed to continue in their present state of inefficiency. Very little time can be given them for repentance and for reform *ab intra.* That little, however, must be given them, and let us hope that they have perception enough to see that the demand for a higher medical education than obtains now means primarily a demand for proper examining tests, and that until these are forthcoming it is vain to expect any material improvement in the medical education of the country. A few months must elapse before the meeting of the General Medical Council. In these some wise and magnanimous changes may be made. But if they are not, it will be but right in the Medical Council to seek powers whereby examining bodies that are inefficient and obstructive may be made to conform to the most urgent demands of the public opinion. It is not only that the present system of examination is inefficient, but it is too diffused. Men have to pass several examinations by different bodies before they are qualified.

Supposing, however, the examinations to be properly combined and rendered real tests of knowledge and competency, and the examiners to be men really abreast with the science of the present day, there will still remain much to be done in the schools. Examiners may be the principal culprits, but they are not the only ones. It is idle to maintain that the arrangements for teaching medicine are efficient. No doubt good men do very well under the present system; but they will do well under any. What is wanted is a mode of teaching that will interest, if not captivate, the ordinary run of students. In regard to this, two or three suggestions occur to us. The grinder has two great advantages over the regular teacher. The first is, that he teaches his pupil in the near prospect of an examination. The fact that a test impends, and will be applied quickly, makes both parties in earnest. To gain this advantage, we think the regular teacher should ask for more frequent examinations—say one at the end of each session. The student would be much more earnest if he saw an early chance of his industry being recognised and of use to him. It requires great faith to work hard for the chance of advantage two or three years hence. But to know that hard work will have its reward at the end of the present session would quicken many a dull man. The second advantage of the grinder is, that he does not lecture his student, but speaks to him as one earnest man does to another. It will be found that the most successful lectures have been those which approached the conversational style, in which there is most of life and personal character; such, for example, as Sir Thomas Watson's or Mr. Syme's clinical lectures. We feel sure that in the earnest time that is coming mere lecturing will be disparaged; and he will be the best teacher and the most prized one who will descend to the tutorial style, and who will count it his great duty and success, by one device or another, to bring the minds of individual students into action.

Lastly, we remark that, if examinations are to be made really testing, this will add greatly to their severity, and will render it a duty to dispense with all unnecessary prescription of details of study. The mere curricula of the different bodies are study enough for many men. Hard, dry regulations must be abolished, and men must be left to pick up knowledge where and how they can. This will tell hardly upon bad teachers and bad schools. So much the better. It is one principal design of the advocates of good examination to create a demand for good teaching, and to withdraw all conventional or protective value from teaching. Schools must not expect to retain all their existing arrangements. Many lectures which now occupy a large portion of the student's time might be dispensed with. Teachers who have not the faculty of teaching must withdraw, and make room for those who have. The school that is most efficient in its teaching machinery, be that whatever it may, will attract most students.

More frequent pass-examinations, a more tutorial style of teaching, and the abolition of needless regulations, seem to us to be great changes which will be necessitated by any improvement in the character of the examination for admission to the profession.

## EXPERIMENTAL SCIENCE AS THE BASIS OF GENERAL EDUCATION.

SOME very important remarks on Experimental Science as the basis of General Education are contained in a recent lecture delivered by Professor Williamson, of University College. We are anxious to call the attention of those, both within and without the medical profession, who are interested in education, to the weighty arguments of which we can here only briefly indicate the drift.

Professor Williamson strenuously opposes a fashionable modern view of the proper function of scientific teaching in the business of education —the view, namely, which regards *technical* education as the object of such scientific teaching as is to be accorded to youth. He maintains, on the contrary, that a training in experimental science is to be considered as the most important element in the *primary* education of all classes of the community. He vindicates Bacon from that common misinterpretation of his views of the great method of inquiry introduced by him, which assumes that the object of experimental science is to increase the material resources and comforts of mankind. So far from this, Bacon taught that the principal object of the experimental method was to enlarge the understanding, and to train the mind for the search after truth. But this is the very basis of all sound education whatever; and in proportion as a man lacks this preliminary training will he be more or less unfitted for the apt acquirement of any special technical knowledge which may be subsequently necessary to him.

Selecting chemistry as the typical example of experimental science, Professor Williamson shows that it deals first of all with an exact appreciation of those commonest and simplest facts which may be called the "Alphabet of Nature;" and that it obliges the student to investigate these with the strictest regard for truth and accuracy. A qualitative chemical analysis is like a judicial inquiry: it is a rigorous examination and confrontation of witnesses—of witnesses who can be compelled to answer truly only by the strictest candor and painstaking on the part of the interrogator, but who thus interrogated will not fail to give reliable evidence. The simplest chemical analysis is thus a model of all true investigation and reasoning; and it is, therefore, idle to urge that, because a man's vocation in after-life may be entirely removed from those spheres in which the technical use of chemistry is needed, a primary education in that science is of no advantage to him. On the contrary, it will familiarise him with that accurate observation of facts and that cautious use of reason in interpreting them, which are the soundest, and indeed the only, satisfactory foundation for all special acquirements whatever. Technical education, in the sense in which that proceeding is now being recommended, is, in Professor Williamson's opinion, a mistake; and he points to the fact that experiments of this kind which have been made in foreign countries have proved failures, and are being abandoned. And, above all, he protests against the exclusive patronage which has been hitherto conferred by our Government on the endowed technical schools which it has established. He objects even to the money spent on the endowment of these establishments; for it might have been far more usefully expended in providing scientific training for the pupils in primary schools. But he especially complains that the further injustice is done of practically monopolising to the students educated in those endowed schools the appointments under Government for which their education fits them. He very justly remarks that this is a most unsatisfactory and even dangerous mode of testing a theory like that upon which technical education in special arts is afforded to youth. At least let there be free competition on equal terms between the students of endowed technical schools and persons who have learned their business in their own independent way.

We must say that we agree with the greater part of these remarks. We must, at any rate, yield our hearty concurrence to the general principle which Professor Williamson lays down, that a training in experimental science should be given *before* the student engages in the acquirement of that special knowledge which is to win his bread for him. The mind of the student of science especially requires to be free, and unclouded by constant reference to the practical application of the truths which he is acquiring. And if that passion for truth for her own sake, which is the noblest characteristic of men like Faraday, and which might be such a powerful engine of general human progress, is ever to be generated on a wide scale in the minds of the rising generation, it is our firm conviction that this must and can only be done by including experimental science in the list of the absolute requisites for a sound primary education.

# Medical Annotations.

"Ne quid nimis."

## ARTERIAL HYPERTROPHY.

At a numerously attended *conversazione* lately held at the house of Dr. George Johnson, we had the opportunity, through his courtesy, of inspecting numerous specimens of arteries with hypertrophied walls, in illustration of the subject which he recently brought forward at the Royal Medical and Chirurgical Society. The specimens showed that in many cases of advanced Bright's disease, where the left ventricle of the heart is much hypertrophied, there is also hypertrophy of the muscular coat of small arteries, not only in the kidney, where it has been long recognised, but in various organs of the body. The preparations, which were in most cases the work of Dr. Kelly, consisted of hypertrophied arteries from the kidney skin, intestines, muscles, and pia mater. Specimens of normal arteries in various tissues, for comparison, were placed by the side of those altered. The great thickening of the muscular coat in the preparations shown was quite unmistakable. Dr. Johnson starts a new theory in explanation of this hypertrophy. It is usually thought that the heart becomes hypertrophied in these cases because it has harder work than natural in overcoming the resistance offered by the tissues to the reception of blood loaded with various constituents of the urine; and that the hypertrophy of renal arteries is designed to aid the heart in its difficult task of forcing the impure blood through the capillaries. Dr. Johnson, on the other hand, believes that the hypertrophy of small arteries in various tissues is intended, not to aid the propulsion of blood (for the contraction of the arteries being tonic, not rhythmical, cannot do this), but to prevent the tissue from receiving too much morbid material. As a result of the contraction of this hypertrophied muscular coat the flow of blood is impeded, more work is thrown upon the heart, the left ventricle of which is consequently hypertrophied. The primary change, therefore, according to Dr. Johnson, occurs at the periphery, the central change results from it. A very interesting field of inquiry is opened out by these ideas.

## THE STAMPING-OUT OF SMALL-POX.

Sir J. Y. Simpson seeks to enlist the sympathy of the public for a proposal to "stamp out" small-pox. What has been done for the cattle-plague might, he thinks, be done for small-pox. Too great an expenditure of life, he maintains, is involved in waiting for a more perfect vaccination of the population, and the stricter limitation of the disease in that fashion. He would therefore supplement vaccination by a stringent system of isolation of cases of the malady, particularly the earliest cases. He would have done in respect of small-pox in addition to vaccination, what Haygarth would have done, and what he believed would have been efficient to the end proposed, before vaccination. Vaccination of itself; insolation of itself; each properly and effectively carried out, would suffice to extinguish small-pox in a community. Both are requisite to "stamp out" the disease among the population of the British Isles, and remove the great mortality, suffering, and disfigurement, which still occur from the scandalous neglect of Jenner's immortal discovery by his fellow countrymen. What Sir J. Y. Simpson says of the public advantages to be derived from isolation of the sick in small-pox is apposite also in scarlet fever, measles, and typhus. Withering applied Haygarth's views of the true prophylaxis of small-pox to scarlet fever; and very recently, B. W. Richardson[*] and J. N. Radcliffe[†] have urged the necessity of isolation of the sick from scarlet fever. It is very pleasant to find the man who has made the next greatest discovery to vaccination, for the benefit of the human race, bringing the force of his name and the power of his facile pen to influence the community to do justice to itself in the matter of small-pox and other contagious disorders. His effort, we feel assured, must produce much good fruit, and we trust that he will live to see it matured in his own time.

## VISIT OF THE EMPEROR AND EMPRESS TO THE CHEMICAL LABORATORIES OF PARIS.

A few days ago the Emperor and Empress, accompanied by the Secretary of State for Education, paid a visit to the chemical laboratories of the Sorbonne and the Ecole Normale. The Emperor's visit was quite unexpected, and at the latter institution, the *savants* who were then at work in the chemical department were taken by surprise, and felt somewhat embarassed on account of the roughness of their costume, and the unprepared state of the laboratory, about which there did linger some of those peculiar ammoniaco-sulphuretted odors more habitually prevalent in the laboratory than in the palace. But the amiable manner of the august visitors soon set them at their ease. M. H. Deville, the Professor of Chemistry at the same school explained to the Emperor the working of a machine which he has invented for the purpose of testing the calorific properties of mineral oils. The drift of his experiments, instituted at the Emperor's special request is to find a mineral oil which might be used without the risk of an explosion, as a substitute for the combustible at present employed on board the French ships of war. The Emperor and Empress conversed a long while with M. Pasteur, the indefatigable adversary of spontaneous generation and the Empress took peculiar pleasure in examining some of his microscopical preparations. M. Lamy then performed some peculiar experiments with thallium, which he has made the subject of a special study. At the laboratory of the Sorbonne M. Rhumkorff reproduced some of the brilliant phenomena which he obtains with his electric apparatus. This visit is said to have taken place in connexion with the Emperor's project to endow the laboratories of Paris with working materials the want of which is urgently felt.

## FIRE AND LIFE.

We are anxious to put in a word on behalf of the London firemen, who, we have reason to know, are being much overworked. The wear and tear of a life of such excitement as theirs would be excessive, even if a decent amount of rest were obtained. Everyone knows this, but it is not everyone who is aware that these men are often days, and even weeks, without getting a proper night's rest. It is not uncommon for men to be on duty for twenty-four hours or more at a stretch. This should not be. It is quite possible for protection from fire to be purchased at too high a rate, at the cost, indeed, of human life unnecessarily expended; and this is very much what is happening just now. A glance at Captain Shaw's report will show the cause. There are 43 fire stations now instead of the 17 which existed in 1865. The number of men, however, has not been proportionately increased. There were then 219, there are now 314. In Paris if we mistake not, some 12,000 or 14,000 men are provided, to do far less work than is performed by a quarter of the number in our metropolis.

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[*] Asclepiad, vol. i., p. 111.

[†] Transactions of the Epidemiological Society, vol. ii., p. 274.

### WORK AND REST.

Our evening contemporary, the *Pall Mall Gazette*, has lately discoursed at once wisely and pleasantly on a most important subject,—Work and Rest. The great points urged in the article to which we allude were that the stress of our present mode of life falls on the nervous system, and that the great evil of it is rather under-rest than over-work. Into any limited space it would have been difficult to put more sense and truth. There is a quality of laboriousness in all we do,—in our pleasures as well as in our work. We do everything fast and fashionably. We move in ruts, and crowds, and set modes. There is no play, no leisure, no quietness in our lives. One great evil is the multiplication of engagements. There is something worrying in the very number of our undertakings. The men work longest and work best who do a few different things thoroughly,—things so different, and withal so interesting, that the doing of one is a complete distraction from the cares incident to the doing of the others. But the most urgent want is that of rest. The

> "Sweet vicissitudes of rest and toil make easy labor."

A capital form of rest is one that has been most foolishly abused,—we mean sleep. Nearly all the men that work well and long have been good sleepers. They have a faculty of sleeping. Witness the Duke of Wellington and Lord Palmerston. But, short of sleep, we want more of quietness in social life. Our evening engagements are far too numerous, and our parties are too much of the nature of public meetings. They have lost all domesticity and simplicity, to say nothing of the cost of them, which is itself a care. They are so late as to extend far into the night.

The injurious results of scanty rest are very obvious. They take two apparently opposite, but really related, forms—excitability and exhaustion. We are fearful and fatigued; hypersensitive and subject to ennui. We are exquisitely sensitive to pain and discomfort on the one hand, and uncommonly hard to please on the other.

Neither moralists nor physicians have much control over the faults of our social life. We can only point them out. The remedy of them rests with the public. Will a few influential people who want easily to do an enormous amount of good, dare to initiate a few changes in our social arrangements in the direction of sleep and simplicity?

### THE LIVINGSTONE SEARCH EXPEDITION.

It is worthy of note that the whole of the party forming the late Livingstone search expedition enjoyed perfect immunity from disease during four months' travel; and it was not until seven days after leaving the Zambesi, on the malarious delta of which the party was encamped from Nov. 11th to Dec. 4th that one man was seized on board the *Racoon* with bilious remittent fever of a very severe character. The man however, recovered. The expedition worked from sunrise to sunset, in boats or walking, on two meals a day, at starting and halting, except a light lunch at midday. A full dose of quinine at night was always taken. It would be well if medical officers abroad would more frequently take the opportunity of forwarding little scraps of useful information such as the above, having reference to the medical and sanitary features of expeditions in which they may be engaged.

### MODERN WARFARE AND MEDICAL ORGANIZATION.

The strain upon the energy, working power, and organization of medical departments under modern systems of warfare may be readily conceived from a statement made by our contemporary the *Spectator*. The American Surgeon-General reported to the Minister at War, that the precise number of white soldiers officially known to have been killed on the Northern side during the civil war was 244,747, besides nearly 30,000 negroes. Moreover, 208,000 soldiers are known to have been wounded and disabled in the war. According to a calculation given, and based on the French conscription, the able-bodied men of the North between the ages of twenty and forty, and fit for war, numbering just 2,000,000. One-eight of these, therefore, were killed, and nearly another eighth wounded and disabled.

An interesting event took place on the 1st January, 1868, in Central America, which shows how highly the services and merits of an English, surgeon are appreciated abroad. A testimonial, consisting of a valuable gold watch and chain, together with an address, signed by the commissioner, captains, and agents of the mine, and [illegible] the laborers, including the inmates of the hospital, was presented to Dr. A. Robinson, medical officer to the Chontales Gold Mines, situated near Libertad, Nicaragua, Central America, as a small token of their esteem for his abilities and kindness as evinced in the performance of his anxious duties among them in a distant land.

A new American "Journal of Obstetrics and Diseases of Women and Children" is about to be published. It will be edited by Dr. E. Noeggerath, physician to the German Hospital and Dispensary, and Dr. B. F. Dawson, assistant to the Professor of Obstetrics in the College of Physicians and Surgeons. The journal will appear on May 1st, 1868, and be continued quarterly. It will consist of ninety-six pages, and contain original articles, reports of societies, hospitals, lectures, and a complete review of foreign and domestic literature of the above subjects. The publishers are Messrs. Moorhead, Simpson, and Bond, 60, Duane-street, New York.

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**Cholera appears to be prevailing at Havanna, in the island of Cuba, in the cathedral of which place, by the way, lie the remains of Columbus. It is nor impossible that the disease may reach some of our West India islands, as there is much commercial intercourse between them.**

# New Inventions

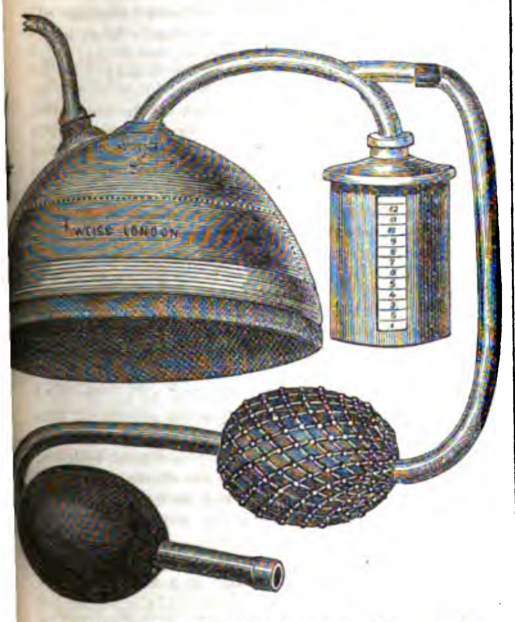
IN AID OF THE

# PRACTICE OF MEDICINE AND SURGERY.

## INHALER FOR BICHLORIDE OF METHYLENE, ETHER, AND CHLOROFORM, BY SPRAY DISTRIBUTION;

### WITH MOUTH-PIECE AND NOSTRIL-TUBE.

MR. FOVEAUX, of the firm of Weiss and Son has submitted to us for inspection a new inhaler, adapted equally for bichloride of methylene, chloroform, and ether. (It was constructed by that firm for Dr. Richardson.) The first step in the construction of this inhaler was a plan by Mr. Foveaux for combining the spray tube with a common metallic mouth-piece carrying a demette diaphragm. After bichloride of methylene came into use, Dr. Richardson suggested a modification of this inhaler for that fluid, so as to secure a larger mask and a broader under surface for the demette; the demette to be changeable easily, so as at all times to be clean. The larger mask and surface were required because of the greater lightness of the vapor of the bichloride, and its low boiling point as the fluid. The instrument, after being modified as above described, is now used by Dr. Richardson with the best results.



The inhaler is represented in the accompanying diagram as ready for use. The mask is made of light vulcanite, and easily and lightly covers the mouth and nostrils. In the upper part of the mask is a spray tube connected with a graduated bottle holding the liquid, and worked by a very small hand-bellows. Inside the mask is the movable demette diaphragm; and when the fluid is sprayed by the stroke of the bellow, it spreads over the demette in a state of the finest subdiffusion; it can, in fact, be presented drop by drop, thus distributed. Anæsthesia with this inhaler can be produced in an adult with two or three fluid drachms of bichloride of methylene, and with from four to six drachms of ether, of specific gravity 0·720, and boiling point 92° Fahr. When chloroform is used, one or two drachms suffice. It all cases the fluids should be sprayed slowly at first, so as to be pleasant to inhale. Ether, when quite pure is at least pungent.

To make the inhaler complete for every operation, Dr. Richardson has added a tube for nostril inhalation in cases of operation in or about the mouth, as for removal of the jaw. In this kind of operation, after the patient has been narcotised in the usual way, the mouthpiece or mask is removed from the face, and the free end of the nostril tube is inserted into or held close to one nostril. The administrator is thus enabled to move altogether from the surgeon, and the narcotism can be sustained thoroughly during every step of the operation.

The mask when closed, carries within it the bottle of fluid, bellows and tube, and demette, and is compact, light, safe, and ready. Its advantages are that by it the surgeon can use whichever anæsthetic he may select,—ether, chloroform, or bichloride of methylene—with equal ease; and it is just possible that had such an inhaler been employed in the days when ether only was known, that fluid would have maintained its original place and character as an anæsthetic. In midwifery practice, and in all cases where the operator is single-handed, this inhaler is far more convenient than any other.

# Analytical Records.

## LIQUOR MAGNESIÆ CARBONATIS (BRIT. PHAR., 1867).

**Among the valuable preparations which were made officinal for the first time by their introduction into the British Pharmacopœia of 1867, fluid magnesia occupied a prominent position. It has been manufactured for many years by the firm of Dinneford and Co., of New Bond-street; and from time to time during the last quarter of a century a large number of medical and other scientific men have borne testimony to the uniform strength and purity of their preparation.**

and it would appear as if the Pharmacopœia process had been devised with a view to the production of a similar solution. Fluid magnesia, however, cannot be made without a special and rather costly apparatus; and the manufacture is, therefore, likely to continue in a few hands. We have had an opportunity of inspecting every part of Messrs. Dinneford's factory, and have been much pleased with the completeness and excellence of the arrangements. Pure distilled water—for the production of which there is ample provision—is used as the menstruum in which carbonate of magnesia is dissolved through the agency of carbonic-acid gas, produced and purified with non-metallic apparatus. The resulting solution—the strength of which is always tested by a member of the firm before it goes into stock—is free from those contaminations which would inevitably be present if common water or imperfectly-purified gas were employed. We have carefully examined some of the solution supplied by Messrs. Dinneford, and represented to be of the "strength of the British Pharmacopœia, 1867," and we find that it answers in every respect to the characters and tests indicated in the Pharmacopœia.

### THE WEST INDIA LIME-JUICE AND LIME-JUICE CORDIAL OF MESSRS. L. ROSE AND CO., OF LEITH.

There are few articles more liable to sophistication than lime- and lemon-juice; and there are but few, also, the consequences of the adulteration of which are more serious. So strongly has this at last been felt to be the case, that the Government has been constrained recently to legislate with a view to secure the purity of these articles. The adulterating ingredients usually employed consist of tartaric acid, bitartrate of potash, common salt, and even sulphuric acid; but not unfrequently the fluid called lime- or lemon-juice consists of little more than a solution of citric acid in water—the salts of potash, which play so important a part in the remedial and curative action of lemon-juice, being in this case entirely absent.

By the Merchant Shipping Act, the addition of 15 per cent. of proof spirit to lime- and lemon-juice is allowed, for the purpose of preventing fermentation, and thus ensuring its preservation. This addition is however costly, if it be not in other respects objectionable; and we have recently received some samples from Messrs. Rose and Co. which it is affirmed, will keep well for a long period, and which, as we have ascertained by analysis, are perfectly free from spirit.

The Sample of Lime-Juice forwarded by the firm above alluded to has a specific gravity of 1026·95, and furnishes 4·08 per cent. of crystallised citric acid, 5·06 per cent. of grape sugar, 2·30 per cent. of albuminous matter, 6·16 per cent. of total extractive matter, iron, and the usual potash and other salts. The ash per 1000 grains weighed 2·93.

A sample of the Lime-juice Cordial of Messrs. Rose and Co. had a specific gravity of 1126·40, yielded 2·88 per cent. of crystallised citric acid, 7·95 per cent. of grape sugar, 13·62 per cent. of cane sugar, and 31·0 grains of extractive matters, as well as the usual saline constituents. The ash weighed 2·40 per 1000 grains of cordial.

As the result of our examination and analysis, we found the samples we operated upon free from spirit, in a good state of preservation, and genuine.

### PRICE'S SOLIDIFIED GLYCERINE OR GLYCERINE SOAP.

The value of glycerine as a remedy for various skin affections is now generally known and admitted; it was therefore both natural and desirable that it should be presented to us in the solidified and therefore most convenient form of a soap. So numerous are the uses and purposes to which glycerine may be applied, especially in combination with other remedial substances, that glycerine compounds abound. Unfortunately, many of these so-called mixtures of glycerine are so in little more than name; they are either destitute of that substance, contain it only in minute quantities, or, when even present in larger amount, the quality is often by no means good. This observation applies with more or less force to many of the so-called glycerine soaps, perfumes, and cosmetics. In Price's solidified glycerine, however, we possess an article of really definite composition and of superior quality, and one on which we believe that the profession and the public may fully rely. It is stated of this glycerine compound that it wears well, gives a rich lather, and that it contains over half its weight of Price's distilled glycerine, the accuracy of which statement we verified by the following per-centage analysis:—

| | | |
|---|---|---|
| Water | ... ... | 21·5 |
| Fatty acids | ... ... | 29·5 |
| Soda | ... ... | 3·7 |
| Glycerine | ... ... | 45·3 |
| | | 100·0 |

## News Items, Medical Facts, &c.

**Death of Professor von Bezold.**—We have to record with much regret the premature death of the well-known physiologist, Arnold von Bezold, professor at Würzburg. Von Bezold was assistant to Dubois Reymond at a very early age, and when only twenty-three was appointed Professor at the University of Jena. The death of this distinguished man leaves a most serious vacancy in the ranks of scientific physicians, for he was one of the ablest physiological experimenters in Europe. His great work on the Innervation of the Heart is one of the most important treatises which have ever appeared; and he had written a number of most valuable papers on other subjects.

**Extraordinary Longevity.**—The obituary of the *Times* one day this week contained some rare illustrations of prolonged existence in three ladies, and as many gentlemen, whose united ages amounted to 521 years, giving an average of exactly 86 years and ten months to each. Of the ladies the oldest had reached the great age of 94, and the youngest 83 years of age; of the opposite sex the oldest was also 94, and the youngest 80 years of age.

**A Hint to Accoucheurs.**—Be mindful to cut the fœtal part of the cord at least two inches from the umbilicus. Cutting too near the latter caused, in a case related before the Surgical Society of Paris by M. Patry, artificial umbilical anus. This surgeon, when the child was eleven months old, pared the mucous edges of the bowel, and succeeded, by a twisted suture, in obtaining occlusion.

**Smokers.**—In the year 1841 the quantity of tobacco cleared for consumption in the United Kingdom amounted to 13 3-4 oz. per head of population. In the year 1861 the amount had increased to 1 lb. 3 1-2 oz. per head of population; and in the year 1865 to 1 lb. 5 oz. So greatly is the habit of smoking tobacco extending in this country.—*The Times*.

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# THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery, Chemistry, Criticism, Literature, and News.

J. HENRY BENNET, M.D., T. WAKLEY, Jr., M.R.C.S.E. EDITORS.

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## Lettsomian Lectures

ON THE

## DIAGNOSIS AND MANAGEMENT OF LUNG-DISEASES IN CHILDREN.

By George Buchanan, M.D., F.R.C.P.,

Assistant Physician to the Children's Hospital, Etc.

### LECTURE III.

Mr. President and Gentlemen,—Our programme this evening includes two diseases of the lungs, pneumonia and pleurisy, which will illustrate quite as forcibly as any that we have yet taken up the need for considering the conditions of childhood as affecting morbid process.

As regards the true or lobar pneumonia of children, I have observed that gentlemen who attend our practice in Great Ormond-street after having become familiar with the diseases of grown-up people at other hospitals, appear to pass through two phases of belief before they appreciate the characters of this disease. They come prepared to recognise it by its indicia in the adult, and they find multitudes of children suffering from cough rapid breathing, fever, and some physical sign of consolidation; and they regard pneumonia as being a very common and a very fatal disease. Presently they come to see post-mortems of these cases, and they meet with—not the hepatisation of a lobe that they expect, but—the evidence of bronchitis with collapse, and of the further changes in collapsed lobules that I described in my last lecture as constituting lobular pneumonia. And seeing in the dead-house nothing but this state of lung, and having constantly shown to them the significance of the symptoms and physical signs of which I spoke, they pass to the next stage of belief, and are disposed to ignore altogether the existence of true lobar pneumonia in early life. In this they are wrong; yet they are much more advanced on the way to be right than they were at first. After a time they learn to recognise the existence of a disease of primary character that has nothing to do with bronchitis, but is wholly comparable with the ordinary pneumonic consolidation of adults; and soon they see the extreme practical importance of the experience they have gained.

Genuine lobar pneumonia in children begins almost always in the same acute fashion as the disease of after-life. Occasionally—and this too may sometimes be seen in older persons—a general ailing or a slight catarrh ushers in the more marked symptoms, but commonly the prodromata are few or none. Rigors of more or less severity often replaced in younger children by convulsions are generally the first sign; and along with them vomiting and headache are observed, as well as the more local signs of short breath, pain in the chest, and dry hacking cough. This stage is followed in a few hours by a very characteristic condition of acute pyrexia. The child lies quietly on its back, with red cheeks and glistening eyes, its pain being indicated by the expression of its face at each act of coughing. Its breathing is quick and superficial, its nostrils moving strongly with inspiration. But neither this symptoms nor the action of the muscles of the neck expresses an amount of dyspnœa so excessive as in broncho-pneumonia, in which also the paleness of the skin the lividity of the lips, the restlessness and anxiety of countenance, give quite a different aspect. In the course of the first or on the second day the fever increases to a maximum, and thenceforth remains pretty steady in amount, with only a trivial remission in the early hours of the morning. The temperature reaches 104° F., or even a higher point, and the pulse is very frequent and full. Other pyrexial symptoms are, injected conjunctivæ, red tongue, loss of appetite, constipation, and scanty high-colored urine. On the second or third day, in the usual case of hepatisation of a lower lobe, the physical signs of the disease may be established. Dulness on percussion, with increased vocal fremitus (or rather fremitus from cry) over the affected lobe, and bronchial respiration and bronchophony, are found. The early period at which these signs are noted after the commencement of illness is a distinction, it will be observed from catarrhal pneumonia. As the disease is reaching its height, we may sometimes find, but more usually we fail to detect, some fine crepitation. The cough remains, but loses its painful quality; the expectoration, if it be presented, as often it may be after vomiting, has the rusty or apricot tints that characterise pneumonia of the adult. In this condition the child continues, with little or no change, until suddenly, at a time averaging a week from the onset, the state of matters undergoes complete change. The flush on the cheek loses its vivid redness, the skin breaks out everywhere into a profuse sweat, the breathing becomes less rapid, and the child commonly falls into a long quiet sleep. When he wakes he is dull and immovable, takes no notice or stares in a vacant, placid way; his bodily powers, that have been taxed to resist the disease now that the end of it has come, insist on rest. It is found that the temperature, maintained till now five or six degrees above the normal, has sunk to, or even below the standard of health. The frequency of pulse and respiration is also reduced. The manner in which the disease takes its departure is to an inexpert eye sometimes suggestive of anything but amendment. The prostration and apathy are so intense, and the pallor and pinched face are so peculiar, that friends are apt to take them as foreboding an imminent dissolution. But with knowledge of the disease, the evidences of remission of fever and of commencing resolution of the local state, enable the practitioner to put the true interpretation on these phenomena and to assure the parents that in a few days their child will be well.

The physical signs do not disappear with the critical change of symptoms. The bronchial breathing and bronchophonic resonance do indeed become considerably less; but the respiratory murmur remains indistinct, and the percussion dulness over the affected lobe remains. And now muco-crepitation, of the sort we call redux in the adult, appears, this being very commonly the first time that any crepitation has existed. Corresponding with this physical sign the cough gets looser, and running from the nose also gives evidence of increased mucous secretion. For a week after the resolution of the disease has begun, some physical evidence of it will be found in the chest; but this does not prevent a very rapid recovery—much more rapid than in grown persons. The child regains spirits and strength, and in a few days there seems little the matter with him but emaciation and incapacity for sustained play or exertion.

Pneumonia affecting more than one lobe, or affecting the upper lobe of the lung, has commonly a rather more slow course than is here described as the type. Resolution is postponed until the second week, sometimes even to the end of it. When two lobes are affected, the suddenness of amendment is less marked, the pulse and temperature fall by several successive steps, and the sweats are suspended for a while to break out again in a few hours; and thus the commencement of convalescence is postponed for some twenty-four to thirty-six hours. When the upper lobe suffers, the course of the disease may be altogether similar to its ordinary progress elsewhere; but more commonly it runs a very slow course, the inflammatory products appearing to be much more slowly deposited, and with more difficulty absorbed. The febrile state is prolonged, and has not a very definite or rapid cessation. The few cases of lobar pneumonia that end fatally have a sort of remission like the rest about the end of the first week; but it is incomplete, and next day the fever is as high as ever. Death either occurs in the second week, after the supervention of acute pleurisy, meningitis, or some other complication; or else, what is still less common, the child wastes, chronic consolidation remains, a softening process goes on in the lobe, and death takes place after some weeks of illness. In fatal cases, the temperature and pulse are maintained to the end at the high point they reached in the first week of illness, or may even mount up higher than this.

This lobar pneumonia, altogether analogous to the ordinary inflammation of the lung in the adult, is one of the least fatal of the group of diseases with which these lectures are concerned. It will be in your memory that for lobular pneumonia of the secondry kind the most favorable estimate confessed to about one death in three cases. In lobar pneumonia the deaths are certainly not more than one in twenty. Nothing more need be said to lend interest to the next part of our inquiry—How are we to recognise the disease from the other more fatal conditions that simulate it.

A disorder that begins by vomiting and convulsions, with fever, evidently presents many points of similarity to meningitis; and it is indeed often necessary to defer until a second or third visit a positive judgment as to the significance of these symptoms. Cough and dyspnœa, with the commencement of definite evidence of consolidation in the lung, while the apparent head-symptoms gradually fall into the background, enable us shortly to distinguish the disease from brain inflammation.

Bronchitis may usually be pretty certainly separated from true pneumonia, even from the first. The less sudden attack of bronchitis, or where the onset is rapid, the suffocative character of the symptoms, the paleness of face, the greater dyspnœa and distress, are indications that, joined with physical exploration of the chest, are available for a certain dignosis. When much lung collapse is added, or when the stage of lobular pneumonia is reached, the history of slower invasion, the severer paroxysmal cough, and the slighter pyrexia, with the evidence, local and general, of impedient in the air-passages, again serve as guides to the catarrhal form of disease. But lobular pneumonia, when it is generalised, is not readily separated from true lobar inflammation by its physical signs; and if the circumstances are unfavorable to an appreciation of the general symptoms, there may be real difficulty in distinguishing between the two states. Thus dulness over an arena of lung may be accompanied by normal or increased vocal fremitus, by bronchial breathing and vocal resonance, in either disease. Now if this state of things chance to exist at one base only, and the muco-crepitation usual in broncho-pneumonia should chance to be absent, and if at the same time a pyrexial condition should be present through the pre-existence of some acute specific illness (a possible set of circumstances, and indeed such as are occasionally observed together in measles), a very remarkable similarity of lobular to lobar pneumonia may be brought about. The weaker, smaller pulse of the lobular disease is here a useful aid. Ziemssen whose thermometrical observations have done so much to establish the essential characters of true lobar inflammation, tells us that the temperature may also afford assistance; that in such a case of lobular pneumonia we should find the febrile heat more gradually attained, and fluctuating more, and at more irregular intervals, than in genuine inflammation of a lobe, when, having reached by a bound the point of 104° or, more, it remains almost at the same point from day to day, with only slight morning remissions. But even Ziemssen confesses that the distinction between the two diseases, under the troublesome conditions stated, may not be certainly possible until we reach the time of noting in what fashion the temperature falls: in broncho-pneumonia it will be by gradual reduction during three, four, or more days, and not by definite crisis.

To the diagnosis of upper-lobe pneumonia from tubercle I made reference in my first lecture. Here I may repeat that the slow progress of the disease when it has attacked an upper lobe is not itself evidence of tubercle, inasmuch as resolution may be steadily effected in the course of three or four weeks, and the patient be left well.

Respecting the treatment of the disease we have been considering, it must be remembered that it has only recently been released from confusion with other diseases, so that we have doubtless something to learn concerning its management. On the good *non nocere* principle, and knowing the tendency of the complaint to spontaneous cure, we might almost be content with putting the child into conditions of temperature, of food, and of nursing of the most favorable sort, without any active treatment—indeed, without any other medicine than is necessary to satisfy the mother that "something is being done." It is a belief among many good authorities that we cannot cut the disease short by treatment—that its time of ending is uninfluenced by any medicines. I am not myself sure of this. It has certainly seemed to me that in some cases the sudden remission has followed too closely on treatment applied at an early stage, to have been the mere coincidence of natural crisis.

Remembering the intense depression that succeeds to the febrile state, we shall not make the mistake of employing leeches or blisters in this inflammation. As for antimony, I should not give it, any more than other members of its class, for its antiphlogistic influence, if by that we understand giving it continuously until its depressing effect on the circulation is attained. Yet it is to antimony, administered in emetic doses during the early period of the disease, that the results I have spoken of as apparently resulting from treatment have been due. I have given tarter emetic in doses of one-sixth to one-fourth of a grain repeated every quarter of an hour till vomiting, and then I have omited all further use of the drug. Whether or not the improvement that I have witnessed has been due to this treatment, at any rate I am satisfied that the progress of the disease towards recovery has been at least as satisfactory after it as on the expectant treatment it can possibly be. Whether or not we have employed this remedy, we shall support the child throughout with appropriate nourishment, we shall relieve pain by hot applications, and to guide it safely through the crisis we shall probably find the careful administration of stimulants useful. It need hardly be said that every case requires, and will repay, precise examination and constant watching, to detect the commencement of those complications without which the disease would seldom be a fatal one. After the pyrexia has gone and the stage of prostration has arrived, tonics and good nourishment are called for, and the rapidity of restoration is often as curious as it is satisfactory. I should treat those rare cases in which the consolidation becomes chronic and tends to disintegration of the lung upon the same principles that were laid down in my first lecture with respect to tubercle.

Passing now from diseases of the air-passages and of the parenchyma of the lung that have hitherto occupied us, I propose to devote the remainder of to-day's lecture to a consideration of the diagnosis and management of *Pleurisy* in its various stages. Let me, as in the case of the other diseases, begin by presenting to you a picture of ordinary pleurisy in a child. To save repetition, I shall, as we proceed, direct attention to the points in which this picture differs from that presented by lobar pneumonia, the disease from which its diagnosis is most difficult.

We find a child with fever, dyspnœa, short cough, and pain. The illness commenced with an attack of shivering or vomiting a day or two before. On examining its chest, we observe some dullness of one base, the shape of the chest is natural, and the heart and liver are found unchanged in position. Moreover, there is bronchial breathing and bronchophony over the dull part. Now every one of these symptoms is common to pleurisy and to lobar pneumonia, Upon what do we rely for the distinction? Firstly, as to the pain. If it appear very acute and persistent, and particularly if it be referred, not to the chest, but to the belly, while the described signs of commencing lung-diseases are being developed, it indicates pleurisy rather than pneumonia. Next, as to the fever. Intensity of heat, up to or beyond 104° Fahr., is more indicative of pneumonia; but no great reliance can be placed on this. Then as to the physical signs. Friction-sound is of rare occurrence at the beginning of children's pleurisy. Friction upon the occurrence of absorption is more frequently met with; but it is only in older children that we can expect it to assist us in the early period of the disease. What of vocal fremitus? When its abolition can be established, when the sound side has a fair amount of fremitus and the dull side is defective, this is indeed the consideration that will make the diagnosis of pleurisy most positive for us. Only it unfortunately happens that, in a particular child, at a given time we can get no vocal (or crying) fremitus whatever, either at the dull base or at the resonant base. The stethoscopic signs very commonly are only such as are perfectly reconcilable either with a lung compressed by some fluid, or with a consolidated lung. In the character of the dulness we occasionally get a more valuable aid. It is an early case that we have before us, and that is giving us equivocal signs of its nature. In this we often are able to make out that the dulness is quite low down at the extreme base, pretty absolute, with bronchial respiration and bronchophony in the same situation. Then the presumption is in favor of pleurisy; for in early lobar pneumonia of the base the dulness is more diffused over the entire lobe, and the bronchial breathing and resonance are heard as plainly, and perhaps earlier, about the lower angle of the scapula than below.

In some or other of these ways guidance may be got to the nature of the local disease, even at a first visit. But, as a rule, it is wise in such a case to make a second and a third examination of the chest before pronouncing an absolute opinion. We have so many elements of diagnosis that help us in the adult, wanting in the child—in regard of sputa, of vocal fremitus, and of general positiveness of the physical signs,—that we have to get what certainty we can by a more careful and repeated study of such facts as are present. Of all considerations that come to help us in the course of the disease, one of the most constantly available and on that account one of the most valuable, is supplied by the way in which the dulness mounts upwards. A dulness that extends equally in front and behind is almost certainly a pleuritic dulness; for in pneumonia of the lower lobe the resonance is abolished over a considerable area at the base before any dulness can be detected in front. And in quality, the dulness from fluid effusion is much more intense than that of consolidation.

If we see for the first time a case of illness that commenced with the ambiguous symptoms before mentioned, and that has lasted a week or more, we can almost always get very clear evidence about fluid effusion. Even if we have not had the advantage of watching the progress of physiical signs, the distension of the chest and the displacement of the viscera now come in to render our diagnosis easy; moreover, consideration of the period at which basic pneumonia would reach its resolution will often by itself give certainty.

It is not necessary to insist on the resemblances between collapse with lobular pneumonia and pleurisy. The points in which the two states correspond, and in which they differ, are sufficiently indicated in what has already been said about lobar pneumonia. But it must be owned that repeated examinations may here again be wanted before a definite judgment on the nature of the disease can be arrived at.

The separation of inflammatory effusion from mere dropsy of the pleura, hydrothorax, is made by several pretty easy marks. Pleurisy is generally ushered in by cough, pain, and dyspnœa; hydrothorax comes about very insidiously without these symptoms at its onset. Pleurisy is very rarely double; hydrothorax almost always so. A change in the line of dulness can be produced in hydrothorax by a change of position; in pleurisy the fluid does not readily gravitate in this way.

The treatment of pleurisy in its earlier stages need not, I think, be particularly active. It should rather consist in relieving pain and in attending to the general condition of the patient than in any effort to cut short the inflammatory process. There are, indeed, cases where this method fails, and the disease goes on to the subsequent stage of empyema; but upon the most valiant treatment these cases of failure occur with at least equal frequency, and we may have so injured the strength of the child that he is in a far less favorable condition for undergoing the necessary treatment of his purulent effusion. Bloodletting in any form I would avoid, with perhaps the one exception of a rapid pleurisy occurring in a strong child, along with evidences of œdema or very rapid congestion of the lung, which may be urgently threatening the life of the patient, and then it is allowable to put one or two leeches on the chest. For the relief of severe pain leeches are sometimes employed, and doubtless they have an effect; but if not so rapidly, certainly more safely, the same effect may be got from the use of hot flannels sprinkled with turpentine; or it is said (though I have not tried them) from the employment of cold epithems in the way I have before referred to in these lectures. Does mercury produce any good result? It is infinitely difficult to answer this question. I have used it in a large number of cases, and I have not used it in a large number of other cases, and I cannot say that the evidence of its value is in any way clear. *A priori*, we should expect the drug to help in the absorption of exudation; but what should we say *à priori* on its advantages in a disease which tends in the other direction to pus-formation? Upon the whole, and mainly for the reason that affects my opinion of other antiphlogistic remedies, I judge that we do more wisely not to employ mercury—of course I mean for its thorough constitutional effects. From antimony I have seen no good results, nor do I see any reason to hope for any. A much more valuable class of remedies are those which help us to relieve cough, and to control in some degree the painful respiratory movements. Foremost I name opium, to which I suspect that most of the good that may have been got formerly from the favorite combination with calomel is to be referred. In pleurisy, even infants will bear larger doses of opium than it is commonly thought expedient to give at young ages; but different children appear to be affected by it in different degrees, and it is always safest to begin with a minimum dose, increasing the quantity till a resonable amount of physiological effect ensues. I have never given this remedy to a child, in pleurisy, so young or so peculiarly constituted that any injury has followed half-drop doses of laudanum, repeated every four hours. For a child of two or three years old, suffering under the acute pain of pleurisy, I should begin with not less than one drop; and if in four hours its effects were not observable, a drop and a half or two drops might be given until the dose is found which, repeated every four hours, will relieve the child's suffering. It is of consequence not to get the constipating effect of this drug, and therefore, besides reducing its quantity as soon as may be, we shall do well to keep the bowels relieved by a dose of castor oil or calomel. A loaded colon or flatus in the intestines adds much and needlessly to the impediment of breathing.

When the acuter part of the disease is over, and we have to deal with pleuritic exudation, we begin to experience the advantage of our abstinence from lowering measures in the earlier days of the disease. In our efforts to promote absorption much now depends upon keeping the child in a good condition of nutrition; and while iodide of potassium with bark, or the syrup of iodide of iron, is being employed, the child may have the best nourishment that it can take. Of local means for assisting absorption, painting with iodine, of about double the strength of the Pharmacopœia tincture, over the affected side every day, and wearing a flannel bandage, have seemed to me the most useful. From blisters I have seen such troublesome and even dangerous results in the hands of other people that I would certainly not use them myself. Of the revulsive class of remedies, it is not well to use any that have a weakening effect, but it is advantageous by hygienic arrangements to keep the skin acting pretty freely.

It is but rare that a healthy child, managed throughout on such principles as I have laid down, gets his effusion extreme or chronic, or passing into the stage of empyema. Most children that come under one's notice with fluid filling the whole side are cases where the disease has been neglected or misunderstood, or where the child is of tuberculous tendency. In a case of chronic pleurisy where the chest is distended with fluid, we can rarely wait with safety for the natural process of cure, for the effusion may be, and often is, fatal by its excessive amount interfering with respiration. If the effusion be producing urgent symptoms, we need not concern ourselves to affirm that the fluid is purulent before giving the patient the advantage of paracentesis. We may often be pretty sure of its nature, but the determination of the point is chiefly important at the moment of the operation, when we can take direct means to obtain certainty.

The cases are somewhat uncommon, but they do occur, where removal of the excessive amount of fluid—that fluid being *serous*—is called for by the urgent dyspnœa, and where evacuation of a portion of it appears at once to reduce the case to the ordinary conditions of a moderate pleurisy, in which the usual treatment will avail to get absorption of the remaining effusion without a repetition of the puncture. To obtain this most favorable result in such a case, it is, without question, essential that no air be allowed to enter the pleura; the canula must be removed, and the case must then be treated as an ordinary one of pleuritic effusion, by means designed to maintain the general health and to increase the power of absorption and repair. What is the nature of the operative proceeding in such a case? First, as to the best spot for puncture. The most commonly available place is in the infra-axillary region, in the fourth, fifth, or sixth interspace: for gravitation performs a very unimportant part in emptying the chest; and the nearness of the lower ribs to each other, with the very considerable chance of puncturing the diaphragm, is an unanswerable reason for selecting a spot at some height above the false ribs. Nothing can be more mortifying than, having determined on operation, to get no fluid from the puncture; to leave the patient to his chance; and to find after death that the trocar, by entering the diaphragm, has missed altogether an extensive volume of effusion. The next point to be ascertained is the character of the fluid; and to know this the small exploring trocar is first to be employed. Having selected the site for operation, and ascertained that the fluid in the chest is serous, an ordinary medium-sized trocar may be driven in, through a small vertical incision previously made in the skin. In passing in the larger trocar, the child should be placed with its affected side upwards, and the other side of the thorax should be steadily supported by the hand of an assistant, so as to throw the ribs of the diseased side wide apart, and to resist the shrinking away of the patient at the moment of puncture. To avoid the entrance of air many ingenious contrivances have been devised. The simplest, as in most such cases, proves to be the most efficient. Let the free end of the canula, while the trocar is in it, have a piece of wet bladder or gold-beater's skin tied round it so as to form a sort of collapsible tube: on withdrawing the trocar the fluid follows it, and passes out with perfect facility; but the inspiratory action, that would otherwise suck air in through the opening, causes the membrane round the canula to flap back upon the orifice, so that it effectually prevents any entrance of air into the pleural cavity. When the fluid ceases to run the canula is withdrawn, the edges of the wound being held together by the fingers and afterwards by a good strap of adhesive plaster. Physical examination after the operation will, in such a case, show a notable expansion of the diseased lung, and evidence of the same fact is seen in the reduction of urgency in the dyspnœa. But it often happens that this new entry of air into a lung that has been comparatively disused for a time sets up a very troublesome fit of coughing. For this, and to relieve the nervous condition into which the little patient has been put by the operation, a dose of opium may be adminstered, and the child should be left in perfect rest for some hours.

In the next place, let us take the more common case of the fluid of chronic pleurisy being *purulent*. Either the urgency of symptoms has decided us to give relief at once, or the progressive wasting of the child and the continuance of physical signs have told us that there is no absorption going on. Our exploring trocar has been used, and true empyema established. What modifications are thereby rendered necessary in the procedure that has been described for the case of serous exudation? The operation itself is much the same, except that the canula should be of the largest size that can be conveniently used, and the trocar should be introduced with a pretty sharp push, so as to perforate the exudative layer, and not to raise it up in front of the instrument. But we have here to deal with a cavity that must heal up by contraction and granulation, much like any other abscess, and plainly a single evacuation with subsequent closure will not suffice. Some authorities advise that the opening should be closed, and a second and third made at short intervals according to the necessities of the case. Others tell us that we may safely leave the pleura open; that we need not mind admitting air during the operation, and that we may manage the empyema just as we would any other accumulation of pus, by a tent in the wound, by poultices, and by washing out the pleura with disinfecting solutions when the offensive character of the discharge requires them. Here is a case that was managed on that plan, not so much intentionally as that the accidents of the operation caused a considerable amount of air to enter the chest:—

A female child, two and a half years old, had been ill for six weeks before admission to the Children's Hospital, under my care. Her illness began with vomiting, pain in the abdomen round the naval, feverishness, and cough. Her breath had been short throughout, but greatly more so for the five days preceding admission. She was found extremely thin, weak and prostrate, livid unable to take any position but on the right side and with well-marked signs of considerable fluid in the right pleura. A trocar was introduced into the fourth interspace in the subaxillary region, and a large amount of pus withdrawn. Owing to the smallness of the interspaces, the surgeon had some difficulty in introducing the instrument, and afterwards the child's restlessness and cries caused a good deal of air to enter before the arrangements intended for its exclusion could be adapted. A canula was put in, and retained closed. The day after the operation the color of the lips had much improved, the pulse was 144, and the respirations 60. There was frequent moist cough; air was found to enter the right lung tolerably well, and near the spine posteriorly there was exception to the dulness of the rest of the side: evidently some expansion of the lung was going on. Over the left chest there were scanty but fine râles. The tube came out now, and was not replaced. Five days later the child, having gone on well up to that time, became very low; its lips pale and livid; its pulse 168, weak; and its breathing 72. Respiration over the left lung was pretty free from râle. The discharge from the wound was abundant and fetid. According to the reports of succeeding days, the discharge being very fetid, the empyema was washed out daily, first with a solution of carbolic acid, and afterwards with water impregnated with iodine; but by neither means was the fetor removed. Nineteen days after the operation the discharge was of the same odor, but much less in quantity; the general state was not worse; no further emaciation, and evidence of retraction was afforded by the circumference of the right side being half an inch below that of the left. The heart beat below the nipple in the fifth space. Respiration of a weak sort was heard over the whole right side. Ten days later, however, convulsions came on (affecting first the right, and then both sides), and remained almost without intermission till death, which took place on the thirtieth day after operation, and in the eleventh week of the disease.

On post-mortem examination, the left lung was found free from tubercle, nowhere consolidated, anteriorly somewhat emphysematous. The right lung was nearly completely collapsed, and covered with a tough layer of lymph; just in front it contained some air, and here the lymph-layer was inconsiderable. The lung adhered to the chest-wall as low down as the third rib, and formed one boundary of a cavity that contained much fetid, dirty fluid with air. In one anterior lobe of the brain was an abscess, containing about a drachm of greenish, inodorous pus, the thick lining membrane of which was in connexion with the pia mater at one spot. No thrombus or diseased bone appeared. No tubercle was found in the brain or its membranes. No other abscess was met with about the body.

Now, in this case, even if we grant that the brain disease that caused death was only accidentally associated with the empyema, the course of the symptoms after tapping, and the post-mortem appearances, do certainly show a very imperfect progress to repair; and it will hardly be disputed, I think, that this unfavorable progress was mainly due to the unhealthy nature of the suppurative process. In some such cases, it is true, after a very protracted course of treatment, a child who has unusual constitutional powers may succeed, with the aid of injections, counter-openings, drainage-tubes, and such surgical aids, in getting the cavity of its empyema reduced, and the surfaces of its pleura to grow into contact, and thus at last recovery does sometimes take place. But I am satisfied that if we can contrive to prevent the communication of the empyema with the outer air, and so spare the child the terrible risk of these putrefactive processes, we shall put it in much better conditions for recovery. I do not venture to say that this can always be done, or that if it were done we could always reckon on the same satisfactory issue that attended the case which I now submit to you by way of contrast with the last.

A boy, seven years old, whose mother's family was consumptive, was admitted into the Children's Hospital after six weeks of illness that commenced with pain in the right half of the belly rather low down, causing him to keep his legs drawn up, and to scream out with its violence. He vomited on the first day, and several times afterwards. The pain lasted more or less for three weeks, and then four leeches were applied to the right iliac fossa, the doctor saying the child had inflammation of its bowels. Much relief to pain followed this application. Ten days ago he began to have œdema and redness of the right chest. He had wasted very considerably, had got intensely weak, sweated a good deal at night, and with his cough he spat up a little blood a few days before admission. Examination of the chest was impossible for several days owing to the intense tenderness of the surface, and even after enough had been obtained for diagnostic purposes, no detailed notes of the child were taken for a fortnight, in which time he had made no notable change for good or bad. Then careful examination was made to settle the propriety of relieving the chest by puncture. The right side of the chest, at the nipple level, measured three-quarters of an inch more than the left, but some part of the difference was due to œdema. The heart beat just outside and one inch below the left nipple; the liver was somewhat displaced downwards, but by reason of the tenderness its edge could not well be felt. For the same reason percussion was not available at the front of the right chest; behind, a tubular note, not absolutely dull, was obtained from top to bottom. On the left side the percussion-sound was not as clear as it should have been at the apex; behind it was natural, not tympanitic. On auscultation of the right lung behind and at the apex an abundant creaking sound, believed to be friction, was noted; this decreased in amount as the lower parts of the right thorax and those round towards the axilla were examined. Down the back there was prolonged expiration of blowing quality; in the axilla and at the base respiratory sounds very feeble. The child was extremely weak; his pulse was 144, and his respirations 40; but his tongue was clean, he took his food well, and the symptoms did not seem so pressing but that for four more days the operation was delayed. Then, the integuments being remarkably brawny, and as it seemed likely that the empyema might point externally, I decided on operation, and on so contriving it as to avoid communication of the empyema with the air. My colleague, Mr. Thomas Smith, introduced a curved trocar and canula into the sixth interspace in the line of the anterior fold of the axilla. The canula was provided with a large flat shield about half an inch from its outer end. Immediately the trocar was withdrawn, a piece of india-rubber tubing was joined on to the canula and pinched close, until a longer piece, joined on by a bit of glass tube, had been provided and its lower end held under the surface of water. Along this channel some ounces of pus were then evacuated, under conditions, it will be observed, that effectually prevented air from entering the cavity. As the tubes were narrow, and the thick pus did not flow freely through them, an exhausting syringe was applied in something of the manner recommended by Bowditch, and a further quantity was obtained. The exhausting power got by this arrangement was plainly small, for it was limited to the force required to cause the sides of the india-rubber tube to collapse. After ten ounces of pus in all had been removed, the syringe was separated; a knot was tied in the india-rubber, the canula was left in, and the child was allowed to sleep. On subsequent days the knot was untied, and, with the same arrangement of dipping the end of the tube into water, about four ounces of pus were removed daily. Four days afterwards it was not in the least fetid. The boy was thin and weak; his respirations 28; his pulse 140, regular, and with more strength. There was less sweating at nights. He ate half a chop, and digested it well. The cough was much less than before the tapping. The right side, measured over some plaster, was now only three-eighths of an inch larger than the left. The apex-beat of the heart was directly below the nipple. Over the right lung percussion-resonance was altogether deficient below the level of the second interspace; at the back the resonance (which seemed to vary from day to day) was deficient, and absolutely wanting at the extreme base. Auscultation showed amphoric respiration at the apex, and an increased quantity of the crackling that had before been noticed, both with inspiration and expiration. Towards the base there was less of this, and weak respiration of blowing quality was found. Over the left lung there was natural percussion-sound, except at the apex, where it was somewhat dull; no rhonchus was heard. In addition to good food, cod-liver oil was now prescribed. A fortnight after the operation the child had greatly mended, was cheerful, and sat up in bed to play. The tongue was clean and the appetite good; pulse 144, stronger; no cough and no dyspnœa. The discharge from the thorax had decreased by degrees, and was now of insignificant amount, and not in the least fetid. The canula was now removed and the opening left. The following physical state was noted. "The right chest is receding notably on all sides; the upper part in front is quite flat; the dorsal spine is curved strongly to the left, and the angle of the right scapula projects. Round the nipples, the right chest measures 11⅜ in., the left 11¼ in. Percussion dull over the right lung in front, especially at the lower parts; behind, a faint resonance everywhere; great resistence. The respiration over the right apex is now cavernous without metallic quality; blowing in character lower down; at right base, behind, weak and blowing. Some crackling sound left, especially at apex. The heart beats in the fourth interspace, immediately below and outside left nipple." A mixture of bark and acid was added to the treatment. A fortnight later this child was up and dressed, but, seeming to get a little catarrh, he was again kept to bed. Apart from this he had made excellent progress; the right side measured 10¾ in., the left 12⅜ in.: this was just a month after operation. In another month, his general condition having much improved, he was sent into the country. At this time it is recorded that the percussion-note over the right lung had greatly improved, being now tolerably clear in front, rather less resonant behind, yet still fairly so except for about a hand's breadth above the last rib. the respiration was weak behind, distant, and somewhat blowing; in front, weak, but louder than behind, and attended with creaking sounds. On the child's return from the country, after a month's absence, he was found to have gained four pounds in weight and to be looking well. The deformity of the chest, though still great, had diminished. The heart's apex-beat was just below the left nipple in the fourth space. The circumference of the right chest was seven-eighths of an inch less than that of the other side. Percussion and auscultation showed considerable improvement of the state of lung. The opening into the chest had quite healed. A note taken five months after the operation records a further reduction of the chest deformity, and that the boy was quite well.

I have related this case in some detail, as it has served to bring out the practical points of a method which seems calculated to afford the best results in the very serious class of cases which it illustrates. It has also afforded so good an instance of the phenomena of retraction and of the deformity produced by pleurisy that I need not now discuss further the mechanical effects of pleurisy on the chest. These, in their later and confirmed stages, indeed, come under the treatment of the surgeon rather than of the physician.

# Clinical Lectures
ON
# DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir **Henry Thompson**,

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Professor of Clinical Surgery, and Surgeon to
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## LECTURE V.

### RETENTION OF URINE AND EXTRAVASATION.

Gentlemen,—Retention of urine is the principal subject for to-day; and if we at all realise what is the condition of a patient who suffers from retention, the acute and constant pain which he undergoes, we shall feel how important it is to relieve him, not only as easily, but as early as possible. And there are very few cases in which you will meet with more gratitude if your treatment is skilful and prompt. But not merely are his sufferings extreme—and I suppose every man who has been so situated as to be unable to relieve a distended bladder, even for a short time, has had some glimpse, though only a faint one, of the distress occasioned by inability to pass water for several hours or even days,—not only, I say, is the pain intense, but there is extreme anxiety of mind also. He fears that the bladder may burst (a circumstance, however, of exceeding rarity), and he always looks forward with gloomy prospects to the consequence of not obtaining relief.

Now, while retention of urine is very common in the hospital, it is not so in private practice. The circumstances of exposure, the different callings which men have who form hospital patients, determine this difference; therefore, when met with among the higher classes, it is always a very grave matter, and in all circumstances, whereever met with, will demand all your care and skill.

Then, again, if your are successful, the relief which you afford is instantaneous. It is not like the questionable result of a dose of medicine, which a sceptical patient may persist in attributing solely to our great ally, the curative power of nature. There can be no uncertainty as to the result of your treatment if, after twenty-four hours of agony, relief follows your dexterous use of the catheter, and the two or three pints which the patient was unable to void are withdrawn by your hand. He tells you that he is "in heaven"—a common expression with such patients,—and he never will doubt for a moment that you were the author of his "translation."

Retention comes before us in three typical forms, each requiring a different species of treatment. There may be some instances which cannot be absolutely so classed, and some the characters of which partake in part of two classes; still, for convenience, it is well to adopt this classification. First of all, you may have retention occurring in a young and healthy man who has no stricture; next, it may occur in an older man who, is the subject of confirmed organic stricture; and, lastly, it may occur in a man who is neither young nor hale, and who has no stricture, but has enlarged prostate. Of the last I have nothing to say; we have already discussed that subject, and the mode of relieving retention in connexion with enlarged prostate. But I shall ask your attention to the two other conditions—namely, retention from inflammatory swelling, and retention arising from organic stricture.

With regard to the first kind, you will probably learn a history something like the following. Within a month or six weeks perhaps, the patient, who is generally a young man, has had gonorrhœa. He has obtained considerable relief from treatment, and has in consequence allowed himself some relaxation of the regimen to which he has been lately submitting. Thus, perhaps, he has indulged a little in the use of alcoholic stimulants, has taken some unusual amount of exercise, a game of cricket or the like, and after being overheated, has been sitting on a cold stone or damp grass; or, lastly, he may have indulged in some emotional excitement. Under those circumstances what is called "inflammatory stricture" may be produced. Now let me say, repeating myself slightly, that that condition has no right to the name of stricture. First of all, the inflammation is probably at the neck of the bladder or in the prostate. It is difficult to ascertain that, except by inference, confirmed however by a rectal examination; for, happily, we very rarely make post-mortems under such circumstances, as the patient does not succumb to the complaint. But what almost to a certainty takes place is a degree of inflammation and swelling of the prostate, not in the least resembling stricture—that is, it is not a circumscribed narrowing at a particular part of the passage, but a tumefaction of the prostate gland, which prevents the expulsive apparatus of the bladder acting and discharging its contents. That is usually the real condition in what is called inflammatory or spasmodic retention.

This condition of the prostate resembles that which affects the tonsils, and which we call inflammatory sore-throat. Both complaints consist in the enlargement of glands which more or less surround narrow passages, and so interfere with the functions of those passages; both occur rapidly, and may be produced by external cold.

Now, what are the early signs of inflammatory retention? First, there is usually some cessation of the gonorrhœal discharge. Just as in the case of orchitis, where the urethral inflammation is supposed to subside and to attack one of the testes, the inflammation of the prostate is similarly associated with diminished discharge, and if you examine by the rectum a very tender and swollen condition of the prostate will be discovered. Then the stream of urine grows smaller and smaller, and in a very short time the patient loses the power to relieve himself altogether. He is feverish, very restless, and suffers severe pain about the lower part of the abdomen and in the perineum. Those who are the subjects of stricture may have become in some measure accustomed to difficulty, but when an active young fellow is thus attacked for the first time, he is in a state of extreme distress.

Now as to the treatment of such a case. The patient desires ardently to be relieved immediately, and declares he cannot endure his sufferings. You see him bent nearly double in order to relieve the pressure of the abdominal muscles on the bladder, and he is even breathing shortly and quickly to avoid their action there. The old treatment in such cases, the classical treatment twenty years ago, was bleeding from the arm or perineum, repeated hot baths, large doses of opium, so as to enable the patient to bear the pain and yet to dispense with the catheter. The reason assigned was that in an inflamed state of the canal you might do more harm than good with a catheter, and that it was therefore better to mitigate pain by the means described. I have told you that I dissent from that treatment altogether, although it is still employed to some extent. For, first, you must look at the after-consequences; and if you allow a young man to remain thirty-six or forty-eight hours with an unrelieved bladder because you fear to use an instrument, permanent mischief may be done. I have seen patients who for years have been unable to empty the bladder after treatment of this kind. Extreme and continued distension of that organ sometimes destroys or permanently diminishes its contractile power, and produces a condition which is properly termed "atony of the bladder." Therefore if you pass the catheter, even at the risk of doing a little mischief to the urethra, I am disposed to think you would be wise in incurring that little risk rather than expose the patient to the other danger. But then it ought to be done without such risk. For my own part, I always take a moderate-sized gum catheter—one not larger than No. 6, as a large one gives in these circumstances unneccessary pain—which has been tolerably well curved in the way I have before described, since it has to enter over a swollen prostate. In this manner there is generally no difficulty in relieving the patient, who is exceedingly grateful for what you have done; whereas if you put him through that long process and he relieves himself ultimately, he thanks you for little, comparatively speaking; and he runs the risk to which I have referred. But in the event of the gum cathether not passing, you should try a silver catheter of the same size. I believe one of the first persons to denounce the old plan of bleeding and hot bathing was Mr. Gutherie. If you turn to the racy writings of that experienced and practical surgeon, you will find an anecdote in connexion with this subject. He relates the account of a visit which he paid to a patient in the circumstances of retention I have described, and the reason, in strong and graphic language, why he then gave up for ever the bath and bleeding practice, and passed the catheter at once for such cases in future.

So much for the inflammatory condition of the the prostrate producing obstruction to micturition. I need not refer at any length to spasmodic retention, which rarely happens. At the same time it may be as well to say that no doubt where an inflammed condition of the urethra exists, spasm of the muscles may coexist; but the precise share which each takes in contributing to the result will not influence the treatment.

Now I come to the second form of retention—viz., that depending upon organic stricture. Here we generally have to do with an older man, because it is rare to find a young one suffering from confirmed organic stricture. As a rule, such a patient mostly has stricture ten or twelve years before he gets complete retention. First of all you have to ascertain that it is stricture. You will probably find that he suffers less acutely than in the previous instance, but still a great deal; the progress of the case has been more gradual, and the derangement has not necessarily been brought on by any great or sudden imprudence. He has been passing water with difficulty for weeks or months, and at length some slight thing has produced a condition of absolute retention; the last ounce has broken the camel's back. Or it may not be absolute retention as before; there may be some dribbling, indeed the patient may have been relieving himself in that inefficient way for days, but the bladder is greatly distended, and to all intents and purposes it is a case of urgent retention. You may find probably that the patient is accustomed to instruments. Now what you have to do is to take an instrument of middle size, and pass it down to the seat of obstruction, to see where it is. You will probably find it four or five inches from the external meatus. You should then take the finest gum catheter and endeavor to insinuate it into the bladder, and if you are sufficiently fortunate to do that, you should tie it in at once, so that you may have no further trouble with it. But that is not a very difficult case of retention. Supposing you do not get the gum catheter in, I should then recommend a small silver one, either No. 1, or even smaller, and use it in the manner I described to you in the lecture before last. Notwithstanding all your care and skill, and those, perhaps, of your friends whom you may have called in, the instrument is still not passed. There may have been false passages (they are easy to make), and there may be such difficulty that it is almost impossible for anyone to pass a catheter after your failure. We then come to the question. What is to be done next? Well then, first, much may be effected for these cases by opium and hot baths. Suppose the water is dribbling off, and you shrink from the *dernier ressort*—that is, puncturing the bladder, or other operation to relieve the retention of the urine,—a safe middle course may still exist for some of these cases. The patient up to this time may have been exposed to cold; let him have the benefit of a warm bed and hot baths, with large doses of opium,—and you must be very liberal with opium if you use it at all,—so as materially to mitigate the involuntary straining, which he can no more help than he can help breathing, and which is utterly unsuccessful as regards the contents of the bladder, and often makes matters rather worse than better. The result may be that the water will dribble off more freely than before, and you may find after two or three days that it will come in a larger stream, and that then you can pass the instrument without much difficulty. The patient may often be saved an operation thus if there are grounds for declining to perform it. On the whole, however, I do not advise waiting very long; still it is better that the patient should be temporised with in that way than that he should be damaged by an unsafe hand either with knife or catheter. Most men, indeed, are quite sufficiently confident in their powers to rely on instrumental methods when they find that a patient cannot make water. Still if you are convinced that you are not doing any good with the catheter, still more that you are doing mischief, you can in most of these cases have recourse to opium or to an inhalation of chloroform, with hot baths and fomentations, with success as regards the immediate and urgent condition.

But we will assume that you have done all that you can do in this way, and that the question of relief by some other means must be met. The bladder is increasing in size notwithstanding your treatment. You examine the supra-pubic region carefully, and find a tense and perhaps large tumour there, reaching to the umbilicus or nearly so, more like a uterus than a bladder. In some old cases of stricture there is not necessarily large supra-pubic dulness, for the bladder is thickened and contracted. Introducing the finger in the rectum you find there also a swelling produced by the distended bladder, and you then seek to obtain the sensation of fluctuation. If, placing my hand above the pubes, I feel a distinct wave communicated to my other index finger in the bowel I know that to be a point at which the trocar can be inserted with safety. Also if I find a well-marked rounded tumour over the pubes which is dull on percussion, the bowel around it clear and distinct, I have reason to believe that an operation over the pubes would be successful. Again, the question arises, why not attempt to relieve the bladder by an operation on the urethra itself from the perineum, so as if possible, to cure the stricture, and at the same time relieve the bladder? Might it not be wise in this manner, as it were, to kill two birds with one stone, and not be content with merely puncturing the bladder by the rectum or above the pubes?

At this point let me revert to the different practice and different experience of surgeons in relation to this matter. Let me give you the experience of Mr. Liston. He once said, from this chair, that during the whole of his connexion with the Royal Infirmary of Edinburgh, and subsequently with this hospital up to the time at which he spake—namely, three or four years before his death,—he had never punctured a bladder for retention of urine. On the other hand, there are men living in this town who have punctured a bladder fifty times or more. Mr. Liston meant to imply that a good surgeon ought rarely to find it necessary to resort to any other means than the catheter in circumstances of retention. But do not suppose for a moment that the gentleman I spoke of who has punctured a bladder fifty times does so because he fails to pass the catheter under those circumstances but because he thinks it wiser to puncture the bladder than to persevere too much with the catheter. Both Liston and Guthrie occasionally performed the perineal operation just spoken of. From the perineum the urethra *may* be reached behind the stricture. Now, without entering into a long discussion on the subject, I may say that this mode has lost favor of late years. It is no easy thing to find the urethra behind the stricture; and a man may make an awkward wound in the perineum, and never hit the urethra at all. Then it does not follow that it should be desirable to divide the obstruction at all, so far as its cure is concerned; for the stricture when the time comes to treat it, may be amenable to dilatation. The reason why puncturing through the rectum has been done so often by Mr. Cock, of Guy's Hospital, is because he conceived it to be an excellent kind of treatment. He says: " Let us withdraw the urine from the urethra altogether for a few days, and the urethra will recover itself, so that we may be able to cure the stricture with ease." And that is often true. He punctures the bladder by the rectum under the circumstances I have mentioned; and this is his instrument for doing it. In this way, the water not passing by the urethra at all, the urethra is lying fallow, so to speak; and in a short time the instrument can be passed—say No. 2, or 3, or 4 catheter, although before you could not pass No. 1. This, then, is a species of treatment of stricture which Mr. Cock has introduced; and, at all events, he has proved how easily and safely this operation may be performed: he has, in fact, familiarised us with a proceeding which before was often thought a very grave and serious affair.

If, then, you have failed to pass the catheter and the symptoms are urgent, you have two proceedings before you: puncturing by the rectum, or above the pubes. [A diagram of pelvic section made on board.] By carrying into the bowel your finger—a reasonably long finger—you arrive at a point just behind the prostate. The other hand is placed above the pubes, that the wave of fluid, by its pressure, may be distinctly felt by the finger in the rectum. You are then quite certain of what you are going to do. Along this finger kept firmly in place, your trocar is slipped, and then boldly but carefully pushed into the bladder. This is always an anxious moment, because, if you have not hit the bladder, it is a serious matter to have thrust this long instrument into the centre of the body and find no urine escaping. The best position for the patient is sitting on the edge of a bed, resting his back on pillows behind, the legs apart, each on a chair; an assistant by him placing one hand on either side above the pubes, so as to steady the bladder, and press it down towards the rectum. It is well to remember, subsequently that if the canula slips out, you will not be able to get it into the same opening again. The muscular fibre of the bladder instantly closes, and you have to make another puncture: not a matter of much consequence, but better avoided.

For the supra-pubic operation you divide the structures in the middle line until you reach the linea alba. Then carefully making your way deeper, you will soon discover fluctuation; and, having the bladder steadied as before, you will thrust the trocar slighly downwards. In this case you retain the silver canula for two or three days; but you may soon substitute a gum instrument. Now supposing there is a probability that your patient may require this artificial relief by tube for some time, you will, of course, prefer the situation above the pubes, because it is much more easy to wear the tube there than it is in the rectum, where it interferes with the functions of the bowel, and is otherwise much in the way. I have known patients who have passed all the urine through a tube above the pubes from ten to fifteen years, and who lead active and comfortable lives in consequence, the natural passage being completely obstructed. One of them, who had suffered greatly before, and was now in perfect comfort, told me that "he did not know whether this mode of passing water was not preferable to the original one!" That, however, I conceive is quite a matter of taste.

Our next subject will be Extravasation and Fistulæ.

## LECTURE VI.

### EXTRAVASATION OF URINE AND URINARY FISTULÆ.

Before commencing the subject of urinary fistulæ, I shall briefly allude to a condition closely related to retention, just considered—viz., extravasation of urine. And it is related in this way: Suppose that from bad treatment, neglect, or otherwise, the patient has had no relief, and when you are called in you find there is no question of puncturing, for the urethra has punctured itself, so to speak; that is, Nature (as in the case of all maladies) has done something; often she acts in a clumsy way, but sometimes not more clumsily than the surgeon. There is no question that many who are the subjects of stricture or retention, and receive no surgical aid at all, will lose their lives in consequence; but they are sometimes saved by extravasation of urine taking place. What then happens is, that behind the stricture a portion of the urethra gives way, perhaps during some violent act of straining, and through the rent so made a quantity of urine is driven with great force into the cellular interspaces. Well, we know where that must go, from the anatomical disposition of the fascia—viz., into the scrotum, up into the groin above Poupart's ligament, and towards the belly. Occurring as it usually does in the bulbous part of the urethra, where the walls of the canal are weak, the urine cannot pass backwards behind the scrotum, or the back part of the perineum; neither can it get into the thighs, because it is checked by Poupart's ligament. I have seen it rise as high as the chest, and I have made incisions to evacuate it, in a bad case of extravasation, as high as this point. Once taken place, it follows that at every action of the bladder more fluid is driven in with force, so that the cellular interspaces are separated, and the fluid usually finds its way upwards. Generally you ought to know at once by the appearance of the patient what has taken place, although it is possible sometimes to confound it with ordinary inflammatory œdema of the scrotum, for it may commence very gradually and insidiously. In ordinary cases you see a hard perineum, a large, red, tense scrotum, the penis swollen, and a red blush perhaps rising over the pubes. In order to ascertain the true state of things, you must ask for the antecedents, and you will probably learn that there was great difficulty in passing urine, followed by rather sudden relief. When a man has had retention for some days, and extravasation takes place, instant relief is experienced—the frightful want to make water disappears as soon as the fluid finds its way into the scrotum; but he soon feels new pains, not necessarily very severe, but, what is worse, constitutional symptoms rapidly set in. The poisonous fluid quickly destroys the cellular tissue, so that sloughing soon begins. After forty-eight hours or so, gangrenous discolorations appear, and the urine may find its way into the corpus cavernosum, when a dark spot appears on the glans, showing that the structure of the penis itself is infiltrated. Without detailing the condition, which you must have seen for yourselves, and which may be seen now to some extent in a patient in the ward upstairs, let me say, Do not in such a case be afraid of the knife. You have no occasion for a catheter; the urine has found its way into the cellular tissue, and you must let it out as freely as possible. On each side of the perineum make a good deep incision. You need not limit the incision to two or even three inches; because you are really cutting into the urine, not into flesh. The structure is so enormously distended that there is but little flesh to divide; and although the incision may appear very deep and long, when the water has run out it will be comparatively small. The incisions generally bleed rather freely. One may soon lose a pint of blood from three or four incisions. The urine runs out also, and as the distension goes off, the vessels are enabled to contract better; but if you see any little vessels spouting, tie it at once. An incision should be made on each side of the penis, because if it is made in the middle line there is not sufficient communication for the incisions on the one side to relieve the other. Do not be extravagant in these incisions; still it is better to err on the side of freedom than to be too niggardly in the use of the knife. The next day, if the case has done well, you will find the scrotum much less in size, and the parts altogether much less swollen and inflamed. You have now a direct communication through the cellular tissue from the bladder, and, with that rent behind the stricture, as a rule, you will be safer in letting the catheter alone, and permitting the water to drain off. What happens? Why just what happens after puncturing the bladder. When the water flows off by another passage the urethra begins to improve, and in three or four days you will probably have no difficulty in passing No. 3 or 4 catheter. With these patients, bad as they are, prostrated as they are when you see them, if the case has not gone to far and too much gangrene has not taken place, very striking and rapid recoveries often follow. The whole scrotum may slough away, and the testicles may be seen uncovered in the wound, and yet all may heal up soundly and well.

This leads us to the next subject. After the exit of the urine by these artificial channels, some of them fail to heal and remain patent, and thus form what we term urinary fistulæ. Now this day week there were in my ward three cases illustrating this condition, and rather exceptionally obstinate ones. One was caused by extravasation of urine, and the other two by the more usual and common cause—stricture of the urethra.

We have spoken of extravasation; how does stricture give rise to a fistula? Thus: in some patients, when a stricture has existed some time, and has had no treatment or bad treatment, it is not uncommon for chronic abscess to form, say in the perineum, between the urethra and the surface. In time this opens externally, and a few days afterwards a little urine finds its way through it, and passes at each time of making water. If no relief is afforded to the patient, another forms; and so several sinuses may arise, and other openings in various and surrounding parts, all giving exit to the urine. These fistulæ may take place in a great number of situations, such as in the penis, in the scrotum, in the perineum, in the groin, and in the rectum, but the last are very rare. We will consider the first four by themselves, because fistulæ which open into the rectum require a different treatment altogether. Then respecting their specific characters, I shall make three classes, examples of which may be found in any of the localities named. First, fistulæ may consist of simple openings or channels between the urethra and the external surface; or, secondly, they may be surrounded with inflammatory induration, which makes them more difficult to heal; and lastly, they may be complicated with loss of substance from sloughing, so that even a portion of the urethra itself may have been destroyed, and these are the most difficult cases to deal with. Hence these fistulæ classify themselves naturally as simple, indurated, and fistulæ with loss of substance.

I will deal briefly with the "simple urinary fistula." Whatever part of the canal it is connected with, it almost always heals if the stricture with which it as associated is dilated. Dilate the stricture, and in nine cases out of ten the fistula will heal. Patients, especially in private practice, are often extremely anxious about the result of an opening in the perineum or elsewhere through which the urine passes; and it is right that you should assure them for the most part, if the stricture is thoroughly dilated, the unnatural passage will heal of itself. But there is another point to be considered in connexion with this—viz., the quantity of urine passed by the fistula, compared with the quantity passed by the natural passage. Of course the gravity of the thing depends very much on the relative proportions passed by the two ways. Usually about three-fourths of the water will pass by the right way, and one-fourth or one-fifth by the wrong passage. If a large quantity—say three-fourths—passes by the unnatural opening, then probably a considerable amount of stricture is present. Nevertheless, as the stricture is dilated, you will see that the proportion passing through the fistula will gradually decrease until it ceases altogether, and the part soundly heals; but this latter result is achieved only on the condition that you maintain the stricture in a dilated condition.

Now we come to fistulæ which are associated with much inflammation and induration in the perineum. These may be multiple; in which case you may find five or six openings. I have known a man with a dozen, so that instead of the urine being discharged by one stream it flows as from a watering-pot. Even this condition, however, very much improves as the stricture is dilated, and may get quite well; but this is not always the case. Then there are some instances looking much less formidable, like those upstairs, with perhaps only two or three openings, through which the greater part of the water has passed for a long while. You recollect that we fully dilated the stricture in each case; but still no improvement as regards the flow of urine through the fistulæ took place. A No. 12 catheter was passed; but the patients did not get well. The condition of the perineum improved very much; but still more than one-half the urine obstinately held its erratic course through the perineal openings. Now, what is commonly done in such circumstances? Usually operative proceedings of some kind are resorted to; or, if these have been postponed or rejected, a rather tedious process has been employed. The principle laid down—and I have myself applied it successfully—is that it is necessary to take care that the external openings should be very free, ensuring this either by means of the knife, or by potassa fusa, or by some other means; so that the urine may not be detained in its way from the urethra to the external surface, causing fresh induration or thickening. Next, you may go on to excite adhesive inflammation in the track of the fistula by a hot wire, or by touching it with cantharides or a strong solution of nitrate of silver. No doubt this treatment sometimes succeeds; but it is at best a tedious process. Then it was sometimes attempted to cure such fistulæ by tying in a gum catheter for weeks, or even for months; but this always fails, and for this reason, that urine always finds its way from the bladder by the side of the catheter, along the urethra, and so into the fistulæ, by the force of capillary attraction, and thus the object supposed to be attainable, in reality never was and never could be so accomplished. The practical surgeon soon discovers that tying in an instrument never ensures the transit of all the urine through it; some will always pass by the side and defeat your purpose. I have, therefore, adopted the plan of teaching the patient to pass the catheter himself; and that is by far the most rapid and the most certain method. With regard to the two cases upstairs, ten or fifteen years ago I should have applied potassa fusa or the galvanic cautery, or something of that kind; but the fistulæ have soundly healed through insuring, by means of the catheter not, as by the other process, that the urine should percolate rapidly through the perineum, but that it should not pass through at all—in fact turning the current the other way.* You first teach the man to pass a No. 7 or 8 gum catheter for himself—an easy matter enough. He then agrees to pass it every time he requires micturition, night and day. On no occasion is he to permit the urine to flow spontaneously—say during five or six weeks,—not even when he goes to stool; and this is avoided by always using the catheter immediately before. That plan has been followed in each one of the three cases in question, without difficulty, and with perfect success; for each man has a sound perineum, and has now relinquished the use of the instrument.

Now I come to the third form of fistula, that in which there is loss of substance. This class must be dismissed rather briefly, because its full consideration would involve tedious detail of many different surgical procedures. Where you have this loss of substance, a plastic operation of some kind is generally required to fill up the gap which exists. When the opening is small, you may contract it very materially by the heated wire or galvanic cautery, or by any mode which tends to produce a contraction of the tissues. You know that cicatrices which result from burns contract considerably, and you avail yourself of that action in this instance. Most commonly, however, if the soft parts have been largely destroyed some plastic operation is required for the cure. Thus on passing a silver catheter, when a portion of the urethra has sloughed away, you may see perhaps a quarter or a third or half an inch of the catheter exposed in the wound. The successful treatment of such cases demands much care and nice management. They do not often come under our notice, and less often do they get completely cured. I have had in the hospital but three or four such cases, in which by means of plastic operations, the patients have been entirely cured. Some of you saw one last winter: a man who had just between the angle of the penis and the scrotum an opening, showing at least a third of an inch of the catheter, the whole of the floor of the urethra having sloughed away. The operation in that case was one of the most successful I ever saw. The first operation completed it, with the exception of an opening not larger than a pin-hole. What was done was to pare the edges all round [illustration], to get a large flap of skin from the scrotum below, which was brought up to cover in completely the wound, the margins being carefully attached by a number of little sutures. That fistula healed perfectly. And why did it heal? Here is the important point: there was one condition necessary, without which it would have failed. A week or two before this operation, I made the patient learn to pass the catheter habitually, so as to draw off every drop of urine; and finding him thoroughly expert at it, I performed the operation; and for the next month he never allowed a single drop of water to pass otherwise than by the catheter. Had I tied the catheter in, it would not have been sufficient, because the water always finds its way by the side sooner or later. Luckily, he performed his part of the compact to the letter for the stated term, so there was no reason why the wound should not heal there as well as anywhere else. The little tiny opening which remained was perfectly closed with the heated wire, and the urethra can now perform all its functions perfectly well. You know there is another very important function connected with this canal besides the function of micturition. I do not know what you may think that function worth, but it might involve very important considerations in cases where the transmission of a great family name or title or estates depended on it. Whether or no, there is no doubt that every man conceives that to be an important function for himself, whatever others think of it for him, and it could not in this case have been performed unless that opening had been closed.

Now, in order to go into the whole subject, I should want a lecture or two to tell you of the different kinds of operations which are performed in different spots. I have taken that one, and it shall be a typical one. It is one of the most difficult to close. The penis is liable to differences in form: the patient may be troubled with erections, which may damage any operation. It is very movable, and there is very little flesh to deal with. In the perineum you have two or three inches of depth, so that you can cut flaps of any size and thickness.

A word or two about the rectum. You remember that I made an exception in reference to fistula coming from the urethra into the rectum. There is a case upstairs in which it occurred from the patient himself thrusting a bougie from his urethra into the rectum. More commonly it occurs from prostatic abscess. In these cases, at each act of micturition urine passes into the rectum—often a very troublesome, even distressing circumstance. The rectum becomes excoriated, and the patient is obliged very frequently to go to stool. I shall say very few words about it, because each case must be treated on its own merits. I will give you the result of my own experience, and that is all I can do. I do not know that there are any published records respecting these cases. They are very few in number, but they are very important when they do occur. I cured one case by position. It was the case of a young officer whom I saw in private practice (I have not met with a case in the hospital), who passed three or four tablespoonfuls of urine into the bowels at each act of micturition, after having had some abscesses there which I did not see. It occurred to me, after some wholly inadequate treatment by other means, to tell him to lie down on his face and make water in that position, never allowing a drop of urine to pass in any other way. In a few weeks he was quite cured—very luckily for me, and for him too. If you ever meet with such a case, the plan is worth trying. I have had two other cases since, but the plan has not succeeded. In the case to which I refer, it occurred to me that the force of gravity would carry the water the otherway; and it did so. No water passed into the rectum, and at the end of six weeks the patient was cured. I saw him some years afterwards, and he was soundly cured. I take it that I should now have made that man pass the catheter into his bladder, and draw off every drop of water; and I have no doubt it would have cured him. Unless there is a loss of substance, that usually does cure the patient; but if there is a loss of substance, and, worse still, if the opening is from the bladder into the rectum direct then nothing is left but to examine the place thoroughly in the first instance. Put the patient on his back, as for lithotomy, and introduce a duck-bill vaginal speculum, as you have seen me do, so as to get a good light thrown upon it. If it is sufficiently large to do a plastic operation, I should not hesitate to perform the same operation that is done for openings between the bladder and vagina—that is, to pare the edges, and stitch them together with silver sutures,—only it is more difficult, as there is less room in the rectum for manipulating than in the vagina. In the vagina there is plenty of space for the work, but I have done it also in the male in one case. I found it possible to do, though difficult; and I believe that is the best plan when these cases occur with loss of substance. If the opening, however, is very small it may be greatly diminished in size, if not cured by applications of the galvanic wire.

# Clinical Lecture

ON THE

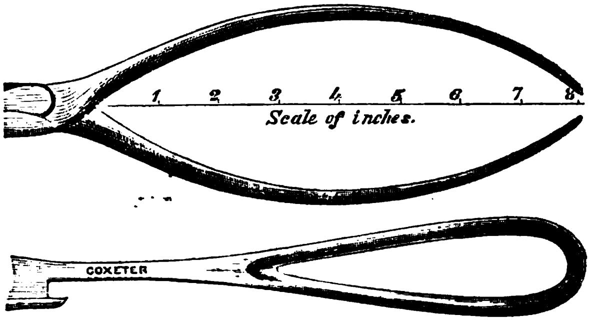
# APPLICATION OF THE FORCEPS.*

By Graily Hewitt, M.D., F.R.C.P.,

**Professor of Midwifery and Diseases of Women at University College, and Obstetric Physician to the Hospital.**

Gentlemen,—For practical purposes forceps operations may be divided into the *high*, the *middle*, and the *low* operation; the middle operation being easier than the high, and the low than the middle. In the large majority of cases I use the forceps known under my name. They are straight; the length of the blades being eight inches, measured from the hinge to the end of the blades in a straight line. These forceps, as you see, have but a slight curve; and the nearer the blades approximate to a straight line the easier are they to use, as you will become practically aware when you come to use forceps yourselves. I recommend these forceps to be used in the middle and in the low operations, certainly; but not in the high operation. In the latter case I employ the long curved forceps, such as those of Sir J. Simpson, and which enable the operator to work round a corner, as it were. Some practitioners use the latter description of forceps for all operations; but, in my opinion, you will prefer the straight ones when you come to practise for yourselves. Seeing that the majority of operations are either "low" or "middle," you will rarely want to use the long forceps. These straight forceps are also called "short," as well as "straight." One of the many advantages of using straight forceps is, that the direction of the line of traction is identical

Fig. 1.



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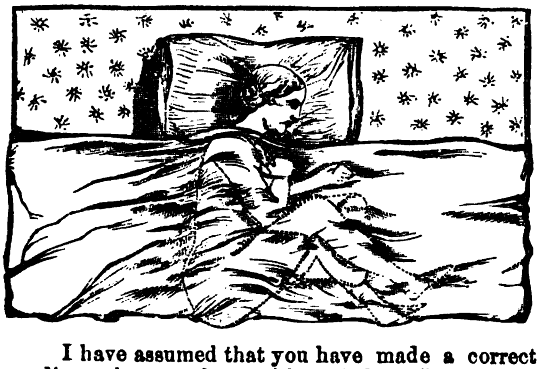
* Reported by Dr. Alfred Wiltshire.

with that of the blades themselves. It is said that curved forceps are less likely to lacerate the perineum; this, however, does not accord with my experience.

So much for the instruments. Next as regards the patient. If you do not begin by putting your patient in a proper position you will have to commence over again—a circumstance which will not only embarrass you, but necessarily induce the patient to lose confidence. Place the patient on a hard mattress: if there be a feather-bed, push it aside, or have it removed out of the way. Bring your patient well to the edge of the bed—much in the position here shown,*—with the nates well over the edge, the patient lying on the left side, the head in the middle of the bed, and the knees drawn well up to the abdomen. (Fig. 2.) You will find it difficult to keep your patient in this position, because there is nothing on which to rest the legs; so the knees must be drawn well up. There is a further advantage in this—that you will thus be able to make traction in the direction of the body. Place a pillow between the knees, or what is still better, let the nurse or an assistant hold up the right knee, so as to leave a good interval between the two. This, then, is the position of the patient. Do not attempt to begin the operation until the patient is so placed. Are there any other preliminaries? It is advisable to give chloroform, unless you have had much experience because you will inevitably cause the patient much pain; and even in practised hands chloroform is frequently almost essential. For the giving of the chloroform you should have skilled assistance. Sometimes I give it myself at first, and then entrust its subsequent administration to the nurse; but it is not well to do so if you can avoid it. Respecting the method of giving it: I prefer the drop-bottle, and a napkin folded like a cone and so pinned. Further, see that the bladder is empty; and ascertain by a vaginal examination, that the rectum is not loaded with fæces. Have by your side a jug of hot water (into which you can put the blades of the forceps), and some cold cream or oil. Do not imagine that any one of the points I have mentioned is immaterial. Many practitioners fail in completing the operation in consequence of neglect of these precautions.

FIG. 2.



I have assumed that you have made a correct diagnosis as to the position of the child's head; this is most important. Do not dream of using the forceps until you are certain of the position of the head. I except, however, the case of the high operation, where occasionally you may wish to apply the forceps without being able to get an accurate knowledge of the position of the head. There is one manner in which you must always apply the forceps in "middle" and "low" operations, and that is over the parietal and malar bones and at right angles to the sagittal suture. Observe how beautifully and accurately the instrument fits the head when so placed [shown on the dummy]. There is but little pressure, and if properly applied, it is almost impossible to do injury with the forceps, either to the soft parts of the mother or to the head itself. Without the necessary knowledge of the position of the head much damage may be done by an unskilful operator. The diagnosis of the position of the head is, then, absolutely essential. The one point to be made out as the clue to all others is the position of the fontanelles; this gives you the direction of the sagittal suture, and at right angles to this suture you must apply the blades. If, for instance, you apply one blade of the forceps in a line with the sagittal suture, as I do on this mannikin, you perceive that you could not introduce the second blade, because the point of the blade would come in contact with the nape of the child's neck and be there arrested.

For the purposes of this demonstration, I shall assume the head to be put in the first position, and in the middle of the pelvis. The occiput, as you are aware, now looks towards the left foramen ovale, the sagittal suture corresponding with the right oblique diameter of the pelvis. The posterior fontanelle is to be felt near the left foramen ovale, the sagittal suture running from it towards the right sacro-iliac synchondrosis. Externally, we may represent the sagittal suture by an imaginary line passing, as the patient now lies, across the perineum obliquely backwards from the left to the right. The direction of the sagittal suture is indicated by the dotted line Fig. 3. At right angles to this imaginary line must the blades be introduced.

We may now commence the operation. In introducing the upper blade, which we will take first, you see how necessary it is to have the patient quite at the edge of the bed. In the right hand take the blade, warmed, oiled, and very clean (your instruments should always be very clean); draw back the perineum with the fingers of the left hand, and introduce the blade in the required direction. (See Fig. 3.) You will now have to exercise a new sense: as all has to be done in the dark, so the touch is of the greatest importance, and by the touch the point of the blade is to be guided to its proper position on the head. The blade arrives at the head, and now comes another important point,—that is, the condition of the os uteri. In the low operation it has usually gone up, but in the middle operation it is frequently the reverse. You must be careful to ascertain by the aid of the finger that the blade is inserted *within* the os. Now push the blade onwards, keeping the point as close to the head as possible; if well directed, it passes in with the greatest possible facility. The first blade has been completely introduced when the handle becomes nearly horizontal. You may meet with a hitch from the point of the blade having caught behind the ear. This obstacle is readily overcome by a little careful up-and-down motion of the handle. An assistant, standing on the operator's right hand, should now take charge of the handle of the blade, holding it lightly, but firmly enough to prevent its escaping.

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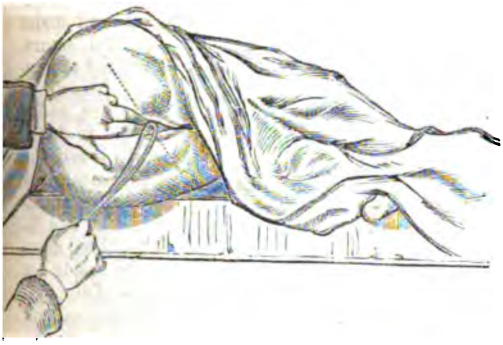
* The leather-stuffed dummy here used to illustrate this and other practical points in the operation.

FIG. 3.



We now come to the more difficult part of the operation, namely, the introduction of the second blade. The perineum, which is now considerably in the way, must be drawn back by two fingers of the left hand, in order to prevent the soft parts or hairs being caught between the blades. The passing of the second blade within the vulva is often difficult when the perineum is rather rigid. It is generally best to get over this difficulty by at first introducing the second blade, as here shown. (Fig. 4.) Having guided the point of the blade to the head by the aid of the fingers of the left hand, you must next place the second blade so that the inside of the handle exactly faces that of the first (see Fig. 5), which during this time has been held steady by an assistant (see Figs. 4 and 5). Occasionally a pain is excited by the introduction of the first blade, and it becomes shifted; in this case you will generally have to begin again. In introducing the second blade the following points require attention; first, take care that the os uteri is not included—frequently a matter of no slight difficulty; secondly, keep the point of the blade close to the head; and, thirdly, see that, before pushing the blade onwards, the handle is precisely opposite the first. If properly introduced, the blade now passes onwards smoothly, and arrives easily at its destination. At first you will find that the handles do not come close together, but if held lightly and firmly by one hand they gradually approximate, and by-and-by they lock. Now be careful to ascertain, before going further, that the blades are still at right angles to the sagittal suture. In the first position of the head the handles will be a little nearer the left than the right thigh of the patient.

FIG. 4.

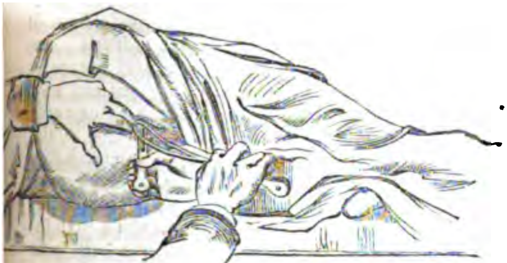
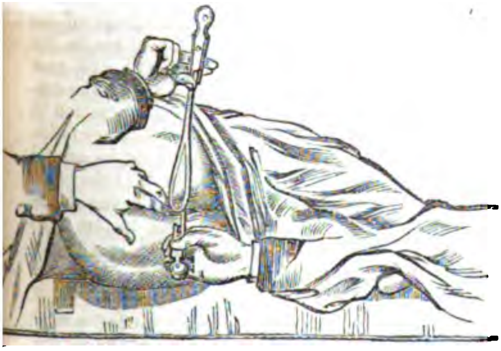
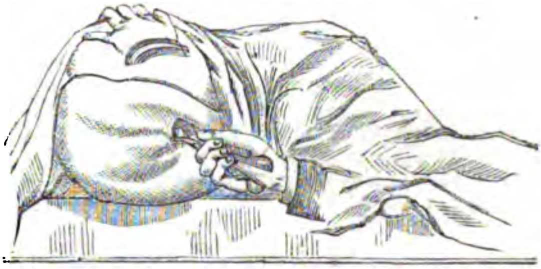


FIG. 5.



Now comes the traction; and here a mistake is frequently made by operators. It is obvious that if you make traction directly downwards, in a line with the axis of the body, the perineum will be injured. In the middle operation the traction is, indeed, at first directly downwards; but, as a rule, traction should be made as much forwards as possible, the handles advancing towards the knees of the patient. (See Fig. 6.) A gentle up-and-down motion, accompanied by gentle traction, in now made, and the head little by little descends. (Fig. 6.) The direction of the traction is a point to which you should attach the greatest importance. Something must be said, also, as to the *degree* of force to be used. Do not, unless you have had a great deal of experience in forceps operations, attempt to use much force, or you will do great injury. Difficulties should be overcome by alterations in the direction of traction, by adjustment rather than by addition of power. The next thing to be attended to is the rotation of the head, which takes place to the extent of one-eighth of a circle as the head is passing through the pelvic outlet, the occiput then becoming central in position. You must, therefore, rotate the forceps to that extent. Practically this rotation will be effected for you if you only hold the instrument so as to allow of its occurence; you have only to take care *not* to prevent it. [In Fig. 6 this rotation is supposed to have occurred.] As you now continue to make traction, the perineum becomes distended, and it is more than ever necessary to make traction in the proper direction—viz., towards the patient's knees. The right knee must now be held or supported at some distance from the other. The delivery of the head should occur with the handles almost between the thighs. The latter part of the process must

FIG. 6.



not be hurried; and you must recollect that the occipital part of the head is at this time almost a fixture—a pivot round which the rest of the head works as it emerges from the vulva. This must, therefore, be imitated, unless, as mostly happens indeed, nature is equal to the completion of the process without further exercise of traction.

It frequently, but by no means always, happens, that just before the moment of extreme perineal dilatation you can slip off the blades. This—the unshipping of the blades—should be done carefully, or you may do injury to the perineum. It is effected by first unlocking the blades, and then removing rapidly first one and then the other blade, withdrawing each carefully in the line of the curve of the blade.

The operation is, by attention to the points indicated, usually easily performed, the circumstances of the case presenting, of course, no special difficulties; but if these points be not attended to, you will find it an exceedingly difficult operation. What I have now said applies, with certain obvious distinctions, equally to the first and second positions of the head.

Supposing, however, the head to be in the third or fourth positions, does this involve any difference in the operation? Yes, it makes this difference, that the operation is much more difficult. You have still to introduce the blades at right angles to the sagittal suture, and, so far as possible, the position of the blades in the head is made identical with what occurs in "first" and "second" positions. The handles of the forceps come, however, much more backward, and the perineum has to be pushed quite far back, to allow of the adaptation of the blades, unless the head be very low down in the pelvis. Here the curved or so-called long forceps can be sometimes used when the straight ones are inapplicable; but in any case the perineum is much in the way. When the forceps have been applied the further steps to be gone through vary according to circumstances. Sometimes we extract with the head in the same position; at other times we rotate the head through a quarter of a circle—reduce the position, in fact, from third to second, or from fourth to first. For traction downwards and for facility of application the curved forceps are sometimes preferable to my own straight forceps; but when rotation is to be effected with the head rather high up, as happened to me but a short time since, the straight instrument answers the purpose most admirably. A curved instrument cannot readily be rotated when high up in the pelvis.

I do not propose to-day to go into the question of the "high" operation. The tactics appertaining to this procedure are peculiar, and different from those which belong to the "middle" and "low" operations with the forceps.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.—The twentieth anniversary festival of this institution was celebrated in March, at the London Tavern. The Right Hon. Lord Feversham occupied the chair, and nearly 200 persons sat down to dinner. Recently the accomodation of the hospital had been considerably increased by the addition of a new wing, so that 120 beds are now available. The number of in-patients under treatment last year was 582, and the total number admitted since the opening of the wards in 1855 was 5280. The number of out-patients under treatment last year as new cases was 14,210, and the total number treated since the commencement was 145,600.

# Original Papers.

## ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

## AS EXEMPLIFIED IN PRIVATE PRATICE.

By CHARLES J. B. WILLIAMS, M.D., F.R.S.,

Consulting Physician to the Hospital for Consumption at Brompton; and

CHARLES THEODORE WILLIAMS, M.B. Oxon.,

Assistant-Physician to the same Hospital.

## INTRODUCTORY REMARKS.

BY DR. C. J. B. WILLIAMS.

PULMONARY CONSUMPTION may be defined to be *a disease characterised by the consolidation of more or less of the lungs, with a tendency to degeneration, softening, and excavation of the parts affected, and this is attended with wasting of the whole body, and other evidences of its imperfect nutrition.*

In a large proportion of cases the consolidations, which precede the destructive process, occur in the form of *tubercles*, miliary or clustered; not necessarily preceded by inflammation in the lungs or air-passages. In others the consolidation is more uniform or diffused, and is the result of some form of inflammation of the pulmonary textures. In either case the progress of the destructive disease is marked by the appearance of yellowish opaque spots, which spreading, convert the consolidations, granular and diffused, into crude yellow tubercle, whilst this further tends to softening, disintegration, and final excavation of the affected textures.

It is this tendency to degeneration and destruction which stamps the *consuming* character of the disease, and the more strongly this tendency is manifested the more irresistible and rapid will it be in its fatal course. In certain cases the disease is so acute and extensive as to carry off the patient in a few weeks or months. In others it is more limited and slow, and may not destroy life for five, ten, twenty, or more years. In the former cases medicine has little or no control over the disease; decay and death invade the frame so overwhelmingly that there is neither sufficient power in nature to resist them, nor time for art to aid that power. One of the most vital organs of the body becomes suddenly invaded by a disease changing its structure, obstructing its functions, and spreading through it the seeds of further decay, which not only in the organ itself, but by the blood, diffuses its destructive influence through the whole system.

Let us briefly sketch the two most terrible forms of the disease.

A man of middle age is attacked with fever, with pungent heat of the body, cough, viscid expectoration, extreme oppression, and overwhelming weakness, resembling that of continued fever; and the likeness sometimes appears also in the coated or dry brown tongue, sordes on the teeth, and occasional delirium. The vesicular breath-sound is superseded everywhere by bronchial rhonchi and mixed crepitation. On percussion the chest is dull nowhere, but less clear in the posterior than in the front part. This case might be supposed to be one of universal capillary bronchitis, with general pulmonary congestion. So it is; but this is not all. In spite of blisters and other remedies the breathing remains short and difficult; the pulse more rapid and feeble; the lips, cheeks, and nails become livid; clammy sweats break out, and the patient dies in the third or fourth week from his first attack. The lungs are found congested, and the bronchi loaded with viscid mucus; but more than this, innumerable miliary tubercles are scattered throughout the pulmonary tissue, and these are the obvious cause of the intractability of the case. They break out simultaneously, like the eruption of an exanthem, and by their numbers and bulk induce such an amount of obstruction and congestion in the lungs as to destroy life before there is time for any considerable degeneration or softening to take place. This *acute tuberculosis* is the worst and most surely and rapidly fatal form of consumption.

The second form of acute consumption begins with pneumonia in one or both lungs. The patient, generally a young subject, is of consumptive family, and may have previously had cough and occasional hæmoptysis. The fever attendant on the inflammation may not be very high at first, and the expectoration by no means so viscid and rusty, nor the crepitation so fine and even, as in simple inflammation of the lungs. But the symptoms are more persistent. The pulse and respiration remain frequent. The heat of the body, particularly of the chest, continues remarkably high, almost burning the ear of the ascultator as he examines the back. But this intense heat is alternated with occasional chills and profuse sweats at night. The cough continues distressing, and the expectoration becomes opaque, purulent, and clotty; the flesh wastes, and the strength ebbs away; and if the appetite does not return, the progress of consumption and decay is rapid. Auscultation reveals the steps of the destructive process in the lung. The affected part, or the whole side, or part of both sides, becomes dull on percussion, only varied with the cracked-pot note from the gurgling within; the loud tubular sounds are replaced by coarse crepitation, in parts amounting to gurgling; and the diffused bronchophony is modified into detached islands of voice, loud and pectoriloquous, or into the snuffling or whispering sounds equally characteristic of a cavity. This form of *galloping consumption* may also prove fatal in a few weeks; and the lungs are found after death in a state of consolidation little more dense than the hepatisation of pneumonia, but their red is mottled with grey and yellow patches of tuberculous or aplastic matter, and excavated in various parts into numerous small cavities communicating with the bronchial tubes, and containing more or less of the same compound matter which was expectorated during life, consisting of mucus, pus, degenerating epithelium and exudation-matter, with disintegrated fragments of lung-tissue. This form of acute phthisis, although generally rapidly fatal, is not universally so. When not too extensive it may sometimes be arrested and brought to a chronic state; and the chance of this result will very much depend on the recovery of the appetite, and the power of the stomach to bear strong nutriment, tonics, and, above all, cod-liver oil.

And in a large majority of the cases of consumption the destructive element is still less extensive and less active, and its progress is much more slow; and we have both time and means to resist its inroads and to fortify the system against its operation to a greater or less extent. In the greater number of instances the disease begins with the symptoms of common cold, often referred to the throat as much as to the chest; and there is, in truth, more or less of bronchial irritation and inflammation attendant on the development of the disease, and recurring with renewed intensity at the time of its increased activity. Often the disorder is mistaken for a common cold, until either its remarkable persistence, or the occurrence of hæmoptysis, of night sweats, of loss of flesh, or of some other uncommon symptom, gives intimation of its more serious nature. Then it is found that, in addition to the signs of bronchial catarrh, there are some of the signs of consolidation of the lungs, generally near an apex; slight dulness or raised tone of the stroke-sound at or below a clavicle, or at or above a scapula; a tubular character in the breath-sound and voice; an undue intensity or duration of the sounds of expiration, or a weakness or absolute obstruction of the inspiration; and sometimes the various slight degrees of crepitus substituted for the proper breath-sound; and various other signs which it is unnecessary here to detail. These signs, however, are the indications of *incipient pulmonary consumption*—that is, of a disease which tends, sooner or later, to injure and destroy the structure of the lung, and to deteriorate and waste the flesh of the whole body. And the progress of this work of injury and destruction is marked by signs of increased density and diminished motion of parts of the lungs; by more of the moist crepitus, from augmented humidity, in and around the consolidations; and eventually by signs of excavation at one or more points, which announce the removal of the diseased tissue.

The progress of this disease may vary infinitely in time and in extent. The more extensive the mischief, generally the more rapid will be its progress, which goes on in the worst cases, uninterrupted by any check or pause, attended by the distressing train of symptoms, harassing cough, opaque clotty expectoration, increasing shortness of breath, burning fever alternated with profuse sweats and chills, rapid loss of flesh and strength and color, sometimes diarrhœa, and aphthous mouth, terminating in death in a few months.

But in other cases, and these are by far the most common, the destructive lesions are less extensive, and their progress is more slow and intermittent, and often seems in great degree to depend on occasional attacks from cold or other external causes, in the absence of which the disease may be quiescent or stationary, and may not destroy life for years.

Powerless as medicine is in the overwhelming and rapid types of the disease, it has yet considerable influence over these milder forms; and the succeeding papers will give some evidence that under careful treatment life may be prolonged for many years in comfort and usefulness, and in not very few cases the disease is so permanently arrested that it may be called cured.

Before proceeding to the detail of cases bearing on these points, it will be well to consider briefly the pathology of consumption—that is, the nature of those lesions which constitute its essential character.

The term "pulmonary consumption" was restricted by Laennec to the wasting disease produced by the presence and progress of tubercles in the lungs. These tubercles he described as existing in the form of gray granulations, or miliary tubercles (of Bayle), yellow tubercles, and tuberculous infiltration, which might be either grey or yellow. But he held that the yellow is only a more advanced stage of the grey, and that the yellow tubercle tends to change further from the crude hard state to that of softening and ultimate excavation. He entirely denied the inflammatory origin of tubercles, and in classing them among "accidental productions" he associated them with cancer and other formations which have been subsequently denominated *growths*, although he was well aware of the generic difference between them in regard to both structure and history.

Andral and Cruveilhier both contended more or less for the inflammatory origin of tubercles, and traced their resemblance to the ordinary products of inflammation; referring peculiarities either to the chronic type of the inflammation, or to the altered condition of the blood of the subject.

Although an admiring pupil of Laennec as far as regarded his sagacity and accuracy in detecting and describing disease, I never considered his views of the nature of tubercle scientific or satisfactory. Those of Andral appeared to be nearer the truth; but so long as forty years ago, when I first published on the subject, I was led to infer that a matter of such common occurrence as tubercle in its various forms was more likely to be a modification of the ordinary nutritive process and material, whether inflammatory or not, than a new growth, or an accidental production, or an adventitious structure. From that time (1828) until now I have held and taught that tubercle is a product of *degraded nutrition*, a material defective in organization, and tending to still further deterioration and decay; involving the textures in which it is thrown out, and the blood in which it is formed, in a more or less continued process of waste and consumption.

The progress of pathological research has thrown much light on the details of the history of tubercle and its allied subjects; but so far from superseding this view, so long ago proposed, it has in most points remarkably confirmed and substantiated it. I therefore propose to take a brief general view of the pathology of tuberculous disease of the lungs, by first giving an abstract from the last edition of my "Principles of Medicine" (1856) and afterwards considering what modifications and additions may be required in consequence of more recent researches.

There is a common variety of *cacoplastic* deposit, which takes place when textural nutrition is degraded, still further than in false membranes and healthy cicatrices: this is the transparent, miliary, grey, and tough yellow forms of tubercle. Instead of (with Laennec) classing tubercle under the vague term of "accidental productions," or (with Carswell) as a "secretion *sui generis*," I have for many years been indued to refer it to a degraded condition of the nutritive material from which old textures are renewed and new ones formed, and to hold that in its origin it differs from the normal plasma, or coagulable lymph, not in *kind*, but in *degree* of vitality and capacity of organization.* Every gradation may be found between euplastic and aplastic deposits, the cells and fibres, which are the representatives of organisation, diminishing in number and completeness, and the material becoming more granular, amorphous, or more abounding in fat-globules, in proportion as the deposit is degraded; until, in opaque, crude, or yellow tubercle, it is altogether aplastic, consisting of an aggregation of granules and fat-globules interspersed with the mere traces or remains of cells.

I consider that the more solid forms of tubercle are entitled to rank among cacoplastic deposits, because, although destitute of vascularity, they seem to possess a kind of structure, like that of the lower kinds of granular deposit. In the semi-transparent grey, tough yellow, and miliary varieties, vestiges of cells and fibres are commonly seen. The affinity of these with granular degeneration and fibrous deposits is shown by their commonly occurring in the same subjects, and by their frequently exhibiting the same tendency to contraction. In a very large majority of cases of chronic granular disease of the kidneys or liver there are found more or less traces of tubercle in the lungs, the chief seat of its deposition; and in very few instances of chronic phthisis have I failed to find some degree of granular disease in the liver or kidneys. In acute phthisis and in acute granular disease local causes accelerate the degenerative change to a destructive extent in one organ before there is time for others to become affected.

We now proceed to trace the history of cacoplastic deposits by a few examples. The dense false membranes formed on the surface of serous membranes may be often seen to be surrounded with a radiated wrinkling or puckering of the adjoining parts, indicating that the abnormal substance has shrunk in size subsequently to its being first laid down. A similar contraction is noticed in the deposits that occur on and under the lining membrane of the heart and its valves, and here it causes a serous disturbance of the mechanism. The narrowing of the chest in some cases of pleurisy is in part dependent on the same property of cacoplastic deposits. This tendency of false membranes to contract was long since pointed out by Laennec and Hodgkin, and the fact was subsequently applied by Carswell to explain the diminished size of the liver in cirrhosis, which he considered to be due to a deposition in the intravascular and filamentous texture prolonged from the capsule of Glisson. I do not myself think that the contractile deposit in cirrhosis is confined exclusively to one texture, but believe that it is generally exuded from distended bloodvessels. False membranes which exhibit the same contractile character are sometimes found on the free surface of serous membranes, and especially along the course of the vessels, veins as well as arteries; and depressions caused by atrophy of the substance of the organ beneath these deposits are sometimes seen in the liver and lung. There can be little doubt that these deposits originate in a fibrinous material exuded from the vessels in certain pathological states (congestion, chronic inflammation, and malnutrition), and forming a dense structure of low vitality which tends by its subsequent contraction to constrict and compress the adjacent parts and so more or less to interfere with the passage of blood through them, and consequently to derange their nutritive and vital operations. The same tendency is evinced in the higher (less aplastic) forms of tuberculous disease. Miliary or granular tubercles in the lungs, when in considerable numbers and not soon softening, cause a contraction in the substance of the organ chiefly at the chest. I have met with many cases in which a sinking of the infraclavian region has taken place before any signs of softening have occurred; indeed, this is a very common sign of tubercles which remain long stationary. The still greater amount of pectoral collapse in the advanced stages of tuberculous lesions, although partly dependent on other causes, is also still in some degree connected with the contraction of cacoplastic deposits in the lungs and pleura. In the peritoneum agglutinated tubercles often cause considerable contraction. I have seen the omentum puckered up by them into a knotty mass.

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* "Corpuscles, more or less globular oval, are seen in tubercles: but the granular matter preponderates as the tubercular mass increases. Cells may be recognized in miliary tubercle, but as they increase in size the well-marked and complete cells disappear. Tubercles appear to differ essentially from the plastic exudations, inasmuch as the cells of the latter not only grow into a higher organization, but increase in number towards the centre. In other words, plastic matter, has an inherent power of multiplying and evolving organic germs. But tubercle has no such power, for it would appear that its primitive cells can only retrograde and degenerate."—Gulliver's Appendix to Gerber's Anatomy, p. 87.

"The semi-transparent forms of tubercle and tubercular infiltration owe their peculiarity to a great relative amount of granulated vesicles; whereas the opaque white forms of tubercle are attributable to great numbers of isolated granules."—W. Addison's "Experimental and Practical Researches," &c., Trans. Provin. Med. and Surg. Assoc., 1843, p. 287.

Rokitansky describes tubercle to consist of a more or less pellucid base, with elementary granules of various magnitudes, nucleus formations in various phases, and scanty nucleated cells. "The nuclei and cells are often to a great extent misshappen, disorderly, jagged, angular, bungling, dumb-bell-shaped, rudimental, stunted."—"Pathological Anatomy," Sydenham Society's Trans., vol. i., p. 295. Rokitansky views tubercle in the light of an altered fibrin, and he considers miliary tubercle to correspond with the fibrinous, and the yellow tubercle with the croupous variety of lymph.'

The microscopic examination of cacoplastic deposits, at different stages of their formation, throws considerable light upon the true nature of this process. When recent the effused matter consists of fibres, with a great quantity of granular, and more or less of amorphous substance, with or without an admixture of cells. At a later period, and after it has contracted, it is much more tough, and it is then found to be more distinctly fibrous, much of the granular and amorphous matter having disappeared. Old contractile adhesions and cicatrices are still denser, and when examined by the microscope are seen to consist of closely interwoven fibres, differing from those of fibro-cartilaginous tissue in being less regular and distinct. Grey or granular tubercles wither, and become more tough or horny ("cornify," Rokitansky), and thus remain quiescent. It appears, therefore, that it is by the partial absorption of the granular and amorphous portion of the deposit, and by the closer approximation of the fibrous or more organised constituent, that the condensation takes place. Hence it is that the structure thus contracted is less liable subsequently to the further degeneration to which cacoplastic products are prone. Certain it is, that of different portions of cacoplastic deposit in the lungs and elsewhere, those that are contracted remain unchanged, whilst the rest pass into the aplastic state of opaque and softened tubercle. The contractile process seems, therefore, to raise the deposit to a higher standard, so that, although still inferior in vitality to the adjoining textures, it gets to be tolerated by them, so to speak. But this very change may seriously injure the textures of organs by contracting and compressing their vessels, and interfering with their nutrition other functions; and in this respect it may be compared with the highest, or most animalised variety of degeneration, the fibrous, which has already been described. It is in this way that the contractile diseases of the liver and kidneys gradually infringe on the circulation and secretion of those organs, and eventually prove fatal. The contraction which takes place near the apices and roots of the lungs in the more limited, and therefore more chronic, varieties of pulmonary tuberculous disease, often lays the foundation of emphysema of the organ and habitual asthma.

Having described the less degraded and degenerating form of cacoplastic deposits, it now remains to notice the variety which is of a lower character, and which tends to become aplastic. This includes all the commoner forms of tubercle. In the granular, miliary, grey, or drab-colored tubercles of serous membranes and of the parenchyma of organs there is found a dense homogeneous solid, closely resembling some of the cacoplastic deposits which have just been described. The resemblance, even the identity, of these may often be very well traced out in chronic or subacute arachnitis, peritonitis, and pleuritis; portions of the affected membrane are covered with diffused masses of semi-opaque deposit, which no one would hesitate to call false membrane, whilst in other parts separate granules of precisely the same deposit exhibit all the characters of granular miliary tubercle. In chronic and scrofulous inflammation the matter effused is, from the first, less ductile and more consistent, and the granular condition consequently more generally prevails, and remains even in spite of pressure and friction; and it is admitted that the product of chronic inflammation of the peritoneum and of the arachnoid membrane is always more or less granular. In acute inflammation in tuberculous subjects recent lymph is commonly studded with opaque granules, which subsequently assume the character of tubercles.

But tubercular deposit is not always preceded by inflammation. In many cases tubercles are found so extensively disseminated through different textures, after few or no symptoms of inflammation, that it is quite impossible to regard them otherwise than as the result of modified textural nutrition.

Miliary tubercles exhibit a considerable variety in size and consistence, according to their age. When recently formed they are plump, and although feeling harder than the surrounding textures, yet they can be crushed with firm pressure between the fingers. But in lapse of time they contract in size, and become tougher, so that no pressure can crush them. This change in the lung is accompanied by a darkening of color, so that old tubercles are often quite black. This is an indication of the tubercle having become quiescent or obsolete, and having little tendency to degenerate to the yellow state.

Tubercles rarely occur in numbers, or spread much, without exhibiting another change of appearance: they lose their semi-transparency, and become of an opaque or dead pale-yellow hue, like the color of raw potato or parsnip. This marks the transformation to crude yellow tubercle first described by Laennec, and this is the result of a further degradation or degeneration of the deposit. The few fibres and cells which are to be detected in grey tubercle are no longer distinguishable here; the interstitial hyaline or amorphous solid is greatly diminished, oil-globules appear in its stead, and the mass becomes proportionately less coherent and more granular, and is now, indeed, quite *aplastic*. Generally the change begins in the centre of the mass, apparently because, there being no permeating vessels, the centre is the part furthest removed from the vivifying influence of the blood. The cornea and other non-vascular textures occasionally become opaque in a similar way, in consequence of deficient supply of sustaining nutriment in the plasma, and may, indeed, entirely lose their organization. A parallel form of degradation is that observed in the degeneration of fibrous and cellular tissues into granular matter, recently pointed out as resulting from malnutrition. But not only will deficient supply of healthy plasma promote the transformation of tubercle from grey to opaque; an undue flow or accumulation of blood, produced by inflammation or congestion in the neighborhood, will also accelerate the change, just as the same occurrence hastens the disintegration of lymph and of compressed textures in suppuration, the conversion of the plastic into aplastic, through the increased warmth and afflux of fluids exalting chemical affinities in a material which has none of that vital power of resistance by which living tissues maintain their integrity.

But tubercle is frequently deposited at first in the yellow opaque state; this circumstance then indicates the still more degraded condition of the nutritive function. The most extensive forms of tuberculous disease commonly present most of this aplastic matter. In rapid phthisis, whether resulting from acute inflammation in a scrofulous subject, or from the excessive prevalence of a scrofulous diathesis (cacoplastic matter in the blood), yellow tubercle generally forms a large portion of the deposit, and it is in these cases that its resemblance to and connexion with coagulable lymph may be best seen. Yellow tubercle is rarely so hard or so tough as the grey or semi-transparent kind; and in such cases of rapid deposit as those just mentioned, it is often very much softer and more friable. Now this state marks the commencement of a change, to which the lowest forms of tubercle particularly tend—that, namely, of *maturation* and *softening* into a substance of soft cheesy consistence. The conversion of grey into opaque tubercle, and the subsequent further softening of the latter, seem to be the converse of the contractile process to which the higher class of cacoplastic deposits are prone. In the contractile process the deposit becomes more dense and organised. In the opaque change and softening it becomes less dense, and loses the little trace of structure which it possessed; it degenerates into an amorphous granular mass; being lifeless, it is no longer nourished, but its granules lose their cohesion, and become disintegrated by spontaneous softening, aided by the chemical action of the adjoining fluids. Mr. Gulliver long ago noticed that there is a remarkable increase of fat-globules in softened tubercle, and this has been confirmed by many subsequent observers. In fact, from the time that tubercle begins to assume the opaque form, oil-globules appear to increase in it, and this goes on until it is either softened and eliminated, or has undergone the petrifactive change to be noticed hereafter. The conversion of grey into yellow tubercle, and the maturation and softening of the latter appear, therefore, to be dependent on a fatty degeneration resembling that which takes place in fibrinous deposits and ill-nourished textures.

The increase of fatty matter in old pus, in the atheroma of arteries, and in the chronic inflammatory deposits of the lungs, was adduced in former editions of my work on the "Principles of Medicine," to show that fat is sometimes a débris of animal matter, as it is when flesh out of the body is converted into adipocere. The detection of Dr. Davy of oleine and margarine in opaque exudation-corpuscles in the lungs, and the observation by myself and others of numerous fat-globules in deposits in the kidney and spleen, and in vegetations on the valves of the heart, were formerly adduced to show a tendency to the production of fat in all degenerated plasmata; and fatty degeneration in the minute arteries of the brain, in the kidneys and other organs, has long since been described by Mr. Gulliver;* but the most complete confirmation of this view is to be found in the researches of Dr. R. Quain,† and in several subsequent contributions on fatty degeneration, especially in the discovery by Kilian and Rainey of fatty transformation of the uterine tissues after parturition. In many instances the fatty matter presents itself in a solid form (either crystallised or in granules) rather than in distinct oil-globules, and this fact suggests that a change has occurred in the quality as well as in the quantity of fat that is contained in the deposits, and that this probably prevents its absorption. These considerations, which have before been noticed in the paragraph devoted to fatty degeneration, prove that morbid deposits are amenable to the laws of fatty or hydrocarbonaceous transformation in common with natural structures, and that they are indeed more liable to this sinking in the scale of organic composition, in consequence of their low vitality and of their extra vascular position placing them beyond the reach of the decarbonising influence of the circulating blood. As the change is in great measure spontaneous, and as it is promoted by moderate moisture, it increases with the age of the tubercle within certain limits, beyond which the mineral transformation, or petrifaction, ensues. But if the deposit be still further deprived of the preserving influence of the living textures, whilst it is kept moist by the exhalation from the surrounding congested vessels, a softening and decomposition more rapid than that of fatty degeneration may take place, and in extreme cases verges on gangrene. Thus, when many tubercles soften early and largely, they do so by a decomposition which is more rapidly destructive, and this by generating matter that is offensive to the adjoining textures and to the whole frame, causes the local and constitutional irritation so strongly marked in acute cases of phthisis.

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* Edinburgh Medical and Surgical Journal, 1843, and Medico-Chirurgical Transactions, London, 1843.

† Medico-Chirugical Transactions, London, 1850.

In these successive changes of tuberculous matter, as well as in its original deposition, the adjacent living parts have an intimate concern. A miliary tubercle may cause irritation and obstruction to the contiguous textures from its first formation. The extent to which it does this depends on the natural or acquired vascularity and excitability of the part, the character of its function, and the precise situation and size of the tuberculous deposit. Thus there is more tendency to mischief and rapid change in vascular and parenchymatous textures than in serous membranes. When the irritation is very slight it may lead to the increase of grey tubercle. When it is more severe it may cause the conversion of grey into yellow tubercle, its further increase in this form, and its softening. If the irritation be still greater, inflammation is excited around the deposit; traces of its existence are often seen after death in the form of an areola of vascular redness. The products of this inflammation (pus, lymph, epithelium, and serum,) tend to hasten the softening of the tubercle, and the evacuation of its substance, mingled with their own, by ulceration through adjoining open surfaces; or, being more solid and plastic, they tend to the formation of consolidations or false membranes around the tubercle, and so to the limitation of its irritating influence. Thus, although, as just stated, the opacity, maturation, and softening of tubercle depend essentially on progressive degeneration and destruction, these changes are nevertheless hastened and modified by the afflux of blood to the neighboring parts.

"In the absence of the circumstances specified above as tending to promote the increase or the further change of tubercle, it may remain comparatively harmless for months, and even for years, subsequently to its first deposition; but then it often exhibits a peculiar transformation, which may be considered to be more spontaneous and of a chemical nature. This is altogether different from the change of the less cacoplastic forms by contraction already noticed as implying an elevation of the deposit to the condition of a fibrous tissue, nourished and preserved as a living part. In the lungs, consolidations commonly remain for a long time without any contraction, and become deeply blackened by an accumulation of the peculiar coloring matter of the lung. But yellow and softened tubercle, if not evacuated, in time becomes replaced by a plastery or putty-like matter, composed chiefly of phosphate or carbonate of lime, and often containing solid concretions consisting entirely of such earthy matter. This petrifactive transformation recalls to mind what has been spoken of in relation to cacoplastic depositions in the coats of arteries and on serous membranes, and as constituting the structural change called erroneously ossification; and it establishes the fourth and last parallel which connects tubercular changes with the degenerations that kindred textures undergo from the influence of age or disease—that, namely, of osseous or mineral transformation. The calcareous conversion of tubercle can be explained only on the supposition that organic matter is absorbed, and the earthy salt deposited in its place. This is exactly what happens in the true petrifaction of organised bodies: the silica or calcareous substance being substituted, molecule for molecule, for the organic principles; so that when there is nothing remaining but the stone, it is moulded in the original form of the organised body. This is very important, inasmuch as it proves that the animal matter of tubercles can be absorbed. The occasional absorption of tuberculous matter is also illustrated by its accumulation in the bronchial and mesenteric glands, which sometimes contain it when the lungs and intestines present only cicatrices, with some calcareous matter in them. Tubercle very commonly exhibits the petrifactive change in the bronchial glands too: the concretions formed in these situations may generally be ascribed to this source."*

The chief point in which the foregoing description requires modification is in regard to the structure of miliary granulations or grey tubercles. The observations of Virchow (in some measure confirmed by Vanderkolk, Foerster, Robin, Villemin, Andrew Clark, and others) prove that these have a more definite and characteristic structure than that which I have ascribed to them. They consist chiefly of small nucleated cells, which multiply by proliferation, but only to the extent of forming these little granules, and not perpetuating or extending their existence by any histogenesis of their own. This is Virchow's description of them:—"I am of opinion that a tubercle is a granule or a knot, and that this knot constitutes a new formation, and indeed one which from the time of its earliest formation is necessarily of a cellular nature, and generally, just like all other new formations, has its origin in the connective tissue, and which, when it has reached a certain degree of development, constitutes a minute knot within this tissue, that, when it is at the surface, projects in the form of a little protuberance, and consists throughout its whole mass of small uni- or multi-nuclear cells. What especially characterises this formation is the circumstance that it is extremely rich in nuclei, so that when it is examined as it lies imbedded in the tissue which invests it, at the first glance there seems to be scarcely anything else than nuclei, but upon isolating the constituents of this mass, either very small cells provided with one neucleus are obtained—and these often so small that the membrane closely invests the nucleus,—or larger cells, with a manifest division of the nuclei, so that from twelve to twenty-four or thirty are contained in one cell, in which case, however, the nuclei are always small, and have a homogenous and somewhat shining appearance. *This structure, which in its development is comparatively most nearly related to pus*, inasmuch as it has the the smallest nuclei, and relatively the smallest cells, *is distinguished from all the more highly organised forms of cancer, cancroid, and sarcoma, by the circumstance that these contain large voluminous, nay, often gigantic corpuscles, with highly developed nuclei and nucleoli. Tubercle, on the contrary, is always a pitiful production, a new formation, from its very outset miserable.* From its very commencement it is, like other new formations, not unfrequently pervaded by vessels; but when it enlarges, its many little cells throng so closely together that the vessels gradually become completely impervious, and only the larger ones, which traverse the tubercle, remain intact. Generally fatty degeneration sets in very early in the centre of the knot (granule), where the oldest cells lie, but usually does not become complete. Then every trace of fluid disappears, the corpuscles begin to shrivel, the centre becomes yellow and opaque, and a yellowish spot is seen in the middle of the grey translucent granule. This is the commencement of the *cheesy metamorphosis* which subsequently characterises the tubercle. The change advances from cell to cell, farther and farther outwards, and it not unfrequently happens that the whole granule is gradually involved in it."*

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* Principles of Medicine, 3rd ed., p. 475.

Now, whilst I admit that these observations prove grey tubercles to have a more characteristic organsation than I ascribed to them, I would particularly call the reader's attention to the passages from this author which I have put in italics. They amount to an admission that granular tubercle in its form and history has more resemblance to pus than to the more organised structures which are properly denominated growths, such as cancer, sarcoma, &c.; and I therefore, and for many other reasons, still maintain that grey tubercles belong rather to the class of cacoplastic deposits than to that of growths. Without entering into the question of the correctness of Professor Virchow's *notion* of the origin of all these morbid productions in the neuclei of connective tissue (for his microscopic illustrations are too *diagrammatic* to carry conviction), it may be remarked that he applies it as much to the formation of pus as to that of cancer. In reference to this and other allied subjects of histology, healthy and morbid, I would express my inclination in favor of the views of Dr. Lionel Beale, as being more consistent with facts, and more comprehensive, than these notions of the German school.

Passing from the subject of grey granulations to that of diffused grey and yellow tubercle, it will be found that the descriptions before given have been in great part confirmed. What Laennec termed infiltrated grey tubercle is now generally admitted to be a modification of hepatisation of the lung, the result of a low inflammation.† Infiltrated yellow tubercle is another form of inflammatory consolidation, affecting either lobes or lobules; the yellow matter consisting of epithelium cells and other exudation matters in the alveolar structure of the lung, undergoing the process of cheesy or fatty degeneration.‡

Now these diffused consolidations, grey and yellow, not only occur as distinct affections, occupying whole lobes or portions of lobes, but to a small extent are found in the lungs of most patients that die of phthisis, forming the walls of cavities, or in the neighborhood of granular tubercles, especially when these are softening. To a smaller extent, they are often met with in lungs otherwise healthy, where death has been caused by some other disease or by accident. In such lungs it is very common to find one or more little hard nodules, generally in the upper lobe, with a puckering of the pleura, from a little patch of dense membrane over it. When cut into, the nodule may be all grey, or it may have a patch of yellow, and sometimes a little gritty calcareous matter is found in it.

These lesions, then, in physical characters, are not to be distinguished from the consolidations which, to a large extent, occur in pulmonary consumption; and this fact forcibly suggests the inference that there is nothing uncommon or specific in them but that these lesions belong rather to variations in *degree* of ordinary nutrition, modified by inflammation or by the condition of the blood, than to the *new kinds* of nutrition which are presented in new growths.

Another fact bearing in the same direction is to be found in different degrees of organisation which are to be traced in these deposits, and on which depends much of their future history. Every gradation may be traced from what I term *euplastic* deposits such as the membranous adhesions resulting from healthy serous inflammation and the material of healthy cicatrices, well organised, well nourished, pliable, and adapting itself to the adjoining tissues, and quite compatible with well-being and health, down to the cacoplastic, tougher, less yielding material, tending to further condensation and contraction, and having morbid effects and a history of its own from its mechanical operation on involved tissues and organs; further down to the more or less *aplastic* forms of crude yellow tubercle and caseous deposit which have no life in them, but undergo the fatty transmutation and disintegration to which they are chemically prone and which excites the inflammation and ulceration of the adjoining tissues for the expulsion of the dead matter; or if, from its smaller quantity or from its being hedged round by an encysting membrane, the cheesy matter is tolerated in the lung, it eventually undergoes the further chemical process of *petrifaction*, or conversion into a calcareous mass.

*(To be continued.)*

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### THE

# NATURAL HISTORY AND TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By Richard Barwell, F.R.C.S.,

**Surgeon to, and Lecturer on Anatomy at, Charing-Cross Hospital.**

## No. VI.

The respiratory form of dorsal curvature, whose treatment I am about to describe, is by far the most frequent and most important of all the classes of spinal deformity. My present task involves, however, this awkwardness. Any person pointing out a new and better procedure is bound to show wherein the old one is defective. If he does not do so, his proposal for change is merely use

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*** Virchow's Cellular Pathology, translated by Dr. Chance 1860, pp. 475-7.**

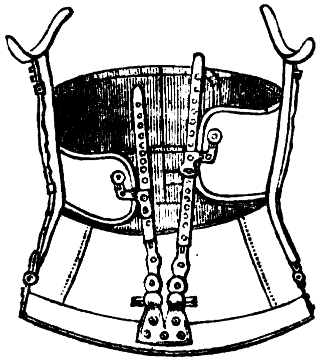
**† Alison, Andral, Cruveilhier, Rokitansky, Addison, Vanderkolk, &c.**

**‡ Reinhardt, Virchow, Villemin, Herard and Cornil, Andrew Clark, &c. The merit of discovering the leading facts of fatty transmutation of deposits and tissues unquestionably belongs to Mr. Gulliver (Edin. Med. and Surg. Journ., 1843). In the same year I pointed out that fatty transmutation had a share in the maturation and softening of tubercle and other products of inflammation (Princ. of Med., 1st Ed., 1843), So far as I know, these were the first distinct announcements of a process which is now generally admitted to be one of the most common and important in pathology. In 1846 Rokitansky recognised it more fully. (Path. Anat.)**

less; if he does do this, he, according to my late experience, appears likely to call forth expressions of bitterness such as have no proper place in a scientific discussion.

The treatment of spinal deformities had been for generations the subject of empiricism. Unduly neglected by surgeons in general, it has of late years fallen into the hands of a few gentlemen connected with special hospitals; also of certain instrument-makers, rubbers, posture masters, and quacks. With all this latter class I am not now occupied; but of the gentlemen above named I have always spoken with all the respect due to professional men. If I state that by exclusive and special dealing with this disease its treatment has got into a vicious groove—if I direct attention, however forcibly, to some of the points in orthopædic management and practice which seem to me faulty and injurious,—it must be permitted me now, once for all, to say that no personal feeling whatever guides my pen. However badly I may think of the prevalent treatment of deformities, and of the mode in which it is carried out, I entertain towards the gentleman above named all feelings of professional respect.

The multitudinous theoretical errors which have attributed lateral curvature to some defect of the spinal muscles proper have led to corresponding misdirection of treatment. Some of these devices are simply nugatory; others, injurious, grotesque, and cruel; while one or two are capable of affording some small benefit. Among the former are such ordinances as occasional use of prone couches, carrying glasses of water on the head, &c.; among the second class, cutting the spinal muscles, screwing the back upon mediæval sort of racks, tying people by the shoulders and dropping them from a height, keeping them for years on a sofa. Among those means which in slight cases may afford some benefit are certain exercises when properly directed. It is not then a matter for astonishment that all these, except perhaps the last two, have fallen into almost complete disuse. Thus at the present time the treatment of this deformity is almost limited to the application of screwing and unscrewing of a mechanism termed a spinal support, to which are occasionally added certain exercises, misdirected to the spinal muscles. No matter what may be the form or the origin of the deformity, this same stereotyped treatment is applied.



The instrument referred to is represented in the annexed figure, borrowed from a work published a year or two ago (to avoid risk of irritation, I omit reference). Its foundation consists of a steel band passing round the hips and abdomen, which carries two steel rods provided with crutch handles, and also with two movable levers bearing plates of the same metal, that are to be placed on each side over the ribs. The object aimed at is this:—The patient is to be placed in the machine; the steel belt is fastened around the abdomen; the shoulders are strapped to the crutch handles; then, by a simple mechanism, these are lengthened so as to lift the shoulders, with the intention of extending the spine; furthermore, the movable levers are screwed so as to force the plates with a certain pressure against the protuberant parts of the ribs and loins. It is plain that if this instrument is to work at all, it must do as a fixture upon the body; or, what amounts to the same thing, it must fix the body in order to act upon it. The shoulders, back, and loins, screwed into an inflexible instrument, must themselves become inflexible, must move in one piece like a Dutch doll. If we reflect on the beautiful and essential mobility of the spine, its various and continual action in the simplest and commonest movements of the body,—if we consider how necessary it is to preserve the power of the spinal muscles, we cannot but see that to fasten and fix the column in a stiff machine must be productive of great discomfort and evil. Furthermore, an instrument intended to immobilise so strong and flexible an organism as the human trunk, and at the same time to influence its form by unyielding pressure, must have a firm *point d'appui*. To fix, however, a narrow steel band on the rounded parts about the hips and buttocks alone is impossible; hence sundry swathings and bandages must be added. One of these surmounts the metallic pelvic band, and, enclosing the loins, is tightly laid over the abdomen; while others, passing forward from the crutch-handled staffs, are similarly fastened in front of the chest. Besides incarceration of the spine, this mechanism so constrains the abdomen that breathing by the diaphragm is an impossibility, and it becomes entirely pectoral; but this form of respiration is, as we have seen, the efficient cause of most curvatures of the spine. The instrument therefore absolutely increases the root of the evil, not only by the abdominal constriction, but by the belt over the chest, which presses back the ribs, chiefly, of course, on the side of the largest lung, the right. Such confinement and such compression of important organs have their natural effect, and few girls emerge from such treatment without considerable loss of health; and in cases where even slight predisposition exists, consumption is induced, as many physicians in London are aware. We might, however, compound for a certain degree of loss of health or a certain amount of risk if the benefit obtained were undoubted and commensurate; but since the instrument, as is shown above, adds more to the cause of the evil than it takes from the effect, we cannot marvel that the results are so unsatisfactory, although we may be surprised that it continues in use. Since it might be thought that I, never using such instruments, had small opportunity of judging their effects, or that my judgment might be biased, I have preferred to sum up shortly the experience of those who do use them, and who would certainly be disposed to give the most favorable view of their value. Dr. Little says:[*] "They are not adapted to the removal of the primary causes of lateral curvature; they cannot, therefore, be employed as curative means." And, in a very recent work,[*] "Notwithstand all that has been said or written in relation to lateral curvature and spinal supports, no spinal apparatus or support hitherto designed is able to overcome rotation of the spine." Mr. Tamplin and Mr. Brodhurst both eulogise these scaffoldings; but it is difficult to find what results they gain, or expect to gain, from their use. Mr. Adams, whose treatise on the subject is more exhaustive, says:[†] "I have no hesitation in expressing my conviction that if these cases be submitted to treatment before any very obvious external deformity has occurred, they are generally curable within one or two years. In some instances, especially if an hereditary tendency to spinal curvature exist, and the girl is of feeble constitutional power, a longer period may be required." Which appears to mean that if a strong young girl of healthy parentage be fastened up in a machine for two years, she may be cured in two years—of what?—of a deformity which can hardly be said to exist. A further insight is afforded by the expressions of two of the above-named gentlemen at the Royal Medical and Chirurgical Society meeting of January 9th, 1866:[‡] "The result of my experience has been to convince me that where lateral curvature existed in any marked degree, and before it amounted to an external deformity, it is essentially an incurable affection." (Mr. Adams.) "When rotation has taken place" (the *primum mobile* of the deviation), "appliances are useless." The clauses of so sad an experience require some comment. A malady may be non-amenable to treatment from positive incurability, or from impropriety of measures taken. Now, firstly, it would be very unwise to conclude that a malady is incurable if an ill-adapted application had done more harm than good. Secondly: It seems *prima facie* absurd to affirm that a slight deviation of form in a young person is incurable. Thirdly: The result of my experience leads to a very different conclusion.

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[*] On Deformities of the Human Spine, p. 379.

I stated in my last paper that in all cases of lateral curvature the power of rotation to the side on which the curve lies becomes limited, while that from the side of curvature is increased in proportion to the amount of curve. The reason of this change, being fully described at the time, need not again be discussed; but it is well to recall attention to the fact that, in consequence of the proportion between amount of curvature and inequality of rotation-power, we have in my rotation-measurer an absolute index of the progress towards recovery.[§] Thus I have in a goodly number of instances taken notes from time to time of the amount of rotation to right and to left. A few of these are subjoined; they give an accurate history of the progress to recovery. It need only be pointed out that the lateral deviation yields *parri passu*; and that, since the patients do not see the index at the time of trial, voluntary effort has no part in the result. I do not discard patients from care until the balance is even, or indeed slightly reversed, since healthy people turn a little more to the right than to the left.

Miss C.B——, aged nineteen:—

| | Right. | Left. |
|---|---|---|
| 19th February | 30 deg. | 40 deg. |
| 25th April | 26 | 36 |
| 10th June | 30 | 35 |
| 15th August | 36 | 35 |

Miss L. L——,[*] aged sixteen:—

| | Right. | Left. |
|---|---|---|
| 27th July | 40 deg. | 70 deg. |
| 24th August | 35 | 61 |
| 21st September | 40 | 60 |
| 19th October | 50 | 59 |
| 16th November | 54 | 58 |
| 14th January | 58 | 58 |
| 11th February | 60 | 58 |

Miss S. C——:

| | Right. | Left. |
|---|---|---|
| 6th April | 25 deg. | 40 deg. |
| | 29 | 39 |
| | 32 | 38 |
| | 34 | 36 |
| | 38 | 37 |

It will be seen that in such cases the back as it gets straighter recovers its equality of rotation power, and at the same time increases its extent, This is also a consequence of improved position,

In the first case a considerable deviation existed, and the bulge backward of the ribs showed much rotation. In the second case there was more deformity, and the lateral deviation was very well marked. The last case was one from weight-bearing, and is merely inserted here to show that in these also the same results ensue. The first case was perfectly straight in seven months; the second in eight, without unpleasant or unhealthy confinement. Nor is it in any way to be wondered at that a much more rapid result can be obtained, since by the system of treatment to be now explained the cause and origin of the evil is *directly* combated.

When the surgeon has made a careful diagnosis, so that he is certain of having to do with a case of *respiratory* curvature, he will be aware that he must combat the tendency to exaggerated pectoral breathing, and obviate the backward tendency of the right ribs. Could he ensue these results in the earliest possible stage, he would have done enough; but these maladies usually come under care in a farther advanced condition, and it is necessary therefore to add means which shall prevent lateral deviation, and restore normal position. It will be my aim as far as possible to keep the description of these appliances distinct; but certain of them belong to both classes.

Belonging evidently to the first category alone is the fit and healthy arrangement of dress. It will be the duty of the surgeon to examine carefully into this point; nor should he rest satisfied with a mere assurance that nothing tight is worn. Let him rather not think it derogatory to see the sort of corset which the patient affects, particularly the hardness and resistance of that part which overlies the abdomen; let him also observe the amount of constriction produced by petticoat strings, also the weight of the clothing. This is frequently considerable, especially in the colder months, when breathing, being more rapid, should be less constrained, but when the mere pressure by gravity on the abdomen renders respiration too pectoral. In cases where the curve is rapidly increasing, part of this weight may be suspended from the left shoulder.

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[*] On Spinal Weakness and Spinal Curvature, p. 65.

[†] Lectures on Curvature of the Spine. p. 326.

[‡] Vide THE LANCET of 1865.

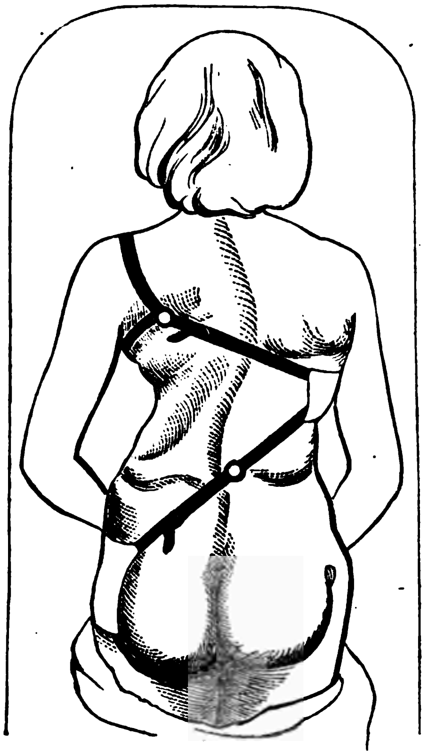
[§] The patients who have worn spinal supports are for some time unable to afford any true data by this means, since the muscles have been weakened and thrown out of gear by the enforced fixity.

[*] This was a spare, wiry girl, with scarce any subcutaneous fat. She possessed great power of rotation, during which the muscles marked themselves strongly. From assiduously watching this case I obtained much information.

The mode of support which I adopt belongs to both classes of device: to that which obviates the backward tendency of the right ribs, and which prevents lateral curve. The oblique bandage is devised on certain principles deduced from the following observations:—In my earlier studies of lateral curvature I was much struck by the fact that, in commencing cases, the curve disappeared when the patient lay down. Certain persons were under my care, whose curvature, though greatly decreasing, did not disappear in that position. I therefore tried to increase the effect of posture by longitudinal traction. Instantly the curves were aggravated; no matter how gradual, gentle, or violent was the force, it always increased the curve in proportion to its amount. I then reverted to those cases in which the curve quite disappeared in recumbency; and in these, too, when traction was made, the curve reappeared. This was equally the result whether upward or counter-extension was made from the head and neck, or from the shoulders and upper part of the chest. I then perceived this fact, that recumbency obviates the lateral bend, but not the rotation. Or, to make this phrase easier by expansion, I would say: On a rotated spine the erector muscles act in a lateral direction, producing the abnormal curve. In the erect posture these muscles are in full action, and the deviation, therefore, well marked. In the prone position the organs are not exerted, and the lateral bend ceases; rotation dependent on other causes, however, still continues. All muscles are, however, excited by stretching; so when in recumbency extension is used, the erectors contract, and reproduce the curve. Hence to use force in longitudinal direction with the hope of straightening the spine, is a mechanical and physiological blunder.

Let us return to the curves which only partially disappear during recumbency. Force upwards and downwards—i. e., in the direction of the crutch-handles in orthopædic instruments, aggravates the curve; but the effect of force at right angles the spine is quite different. No muscular contraction is excited thereby. Hence very little power will straighten the column.[*] Indeed, when a patient in the earlier stages of curvature stands before a surgeon, he instinctively places his hands one on each side at the point of greatest curvature; and, by pressing in opposite directions, finds that, according to the severity of the case, he can entirely or partially restore the straight line of the spine.

The oblique bandage[†] simply prolongs, renders permanent, the office which the surgeon's hands can only temporarily fulfil. It consists of a pad of coutil situated at the hip, and which is the fulcrum of the apparatus; it is held in place by a round well-padded strap passing round the upper part of the thigh. From this pad runs, both in front and at the back, a webbing strap to another pad placed on the right over the most retrograde ribs; and from this again, over both chest and back, other straps pass to the left shoulder. The straps are rendered elastic by intercalated rings of india-rubber, and are of course provided with means of regulating tension. To insure clearness of illustration, the bandage has been depicted as though it were next the skin; but it is not thus used, a very simple arrangement of dress enabling the patient to wear it outside the chemise and underclothing.



One of the objects fulfilled by this apparatus—namely, lateral action on the curves of the spine—has been discussed. The other—namely, such forward impulse to the right ribs as shall prevent, and aid in the cure of, rotation—is procured by difference of strength in the elastic rings before and behind, by certain checks to the elasticity of the latter, and by difference of tension regulated by the surgeon, This, with a little practice, is very easily achieved, care being taken to fix at a certain amount the difference of pressure. There are, however, some cases, chiefly those of old standing and much deformity, which require a somewhat modified bandage; but this is so easily altered from the type depicted that I will not occupy space in a description of varied forms.[*]

It is not however entirely, nor indeed chiefly, upon this bandage that I rely for cure. All kinds of aids and supports can only be aimed at the effect. The most valuable treatment of all disease must be directed at the cause; and I have cured many of the less severe curvatures, in which external distortion was quite obvious, without any support at all. Two of the exercises or positions which I recommend, directed only to the lateral deviation, are the sloping seat and the lateral sling. Of the former I have already spoken. Its value lies in the fact that it does not force the spine passively into any posture, but obliges the muscles themselves to straighten out the abnormal lateral curve. The lateral sling is simply an arrangement of a broad bandage into a loop, comparable to a round or jack towel, suspended at a certain short distance above a couch. In this loop the patient lies on her right, in such a manner that the breadth of the band lies opposite the most pronounced part of the curve, and lifts a little from the couch, whereon the rest of the figure reposes. Care must be taken that the loop does not slip, which a little band passing over the shoulder will prevent.

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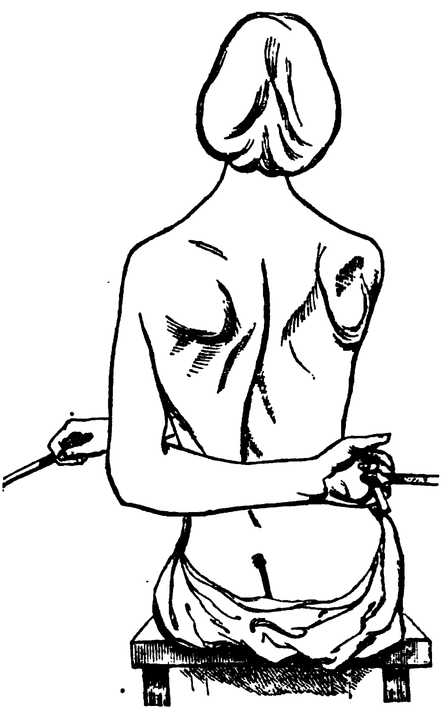
[*] This only refers to lateral deviation, not to rotation.

[†] The draughtsman has placed the pad on the right too far forward. To find the direction of force, the angle of the two straps meeting at the right side must be bisected: the bisecting line gives from right to left the direction of the force. The direction of the force at the left shoulder is given by the upper strap, but it acts on the spine in an are whose centre is the point where the band crosses the column.

[*] It was stated in my paper on weight-bearing curves that the shoulder sling was to be frequently combined with the oblique bandage. This arrangement is very simple: the pad on the right ribs must be provided with a pocket, in which the lower angle of the triangular support rests, and from which it gets its bearing.

Other exercises are aimed only at rotation, and these are the most important; they are designed to increase the action of the left and decrease that of the right serratus. Let the postures fully described in the last paper, which bring forward the base of the right scapula, be here also enforced. Let the patient, while on the sloping seat, turn her trunk, keeping the pelvis fixed, to the left. To the wall on each side of her sloping chair let hooks be fixed, and let these bear strong elastic cords terminating in handles, which she is to use in the following manner: the right arm is to cross in front of the body and hold the handle attached to the wall on the left, while the left hand passes behind the trunk and grasps the handle from the right. The amount of tension must be carefully regulated, so that it shall not be irksome, and yet shall draw the right scapula far forwards, and the left well back. The accompanying figure, from a photograph of a patient nearly cured, shows the kind of posture produced. Now the patient is to be directed to make several very deep inspirations: let them be long and slow—if possible, only six to the minute; the inspiration occupying more time than the expiration. By the different postures of the shoulder-blades the left serratus has more power than the right, and at each breath the left ribs will be chiefly used; giving a twist to the vertebra contrary to the abnormal torsion. Place the patient sideways to the wall: let her stretch out the right arm sideways and horizontally; place in it the handle, with the elastic cord at a certain ascertained tension; then, keeping the arm straight, the body still, and the head thrown back, let her draw up the shoulder so as still further to stretch the cord. This exercise is very useful, but requires strict watching. Let the patient, while sitting on the sloping seat, keep the right arm crossed well over the chest; then, taking a deep inspiration, throw back the right arm so that the hand describes part of a horizontal circle, and let this be repeated three times before taking a fresh breath and recommencing the manœuvre.

There are other means and devices to be used with advantage, more especially in the later stages. I should have wished to enter more into this subject, but have already occupied considerable space. I would therefore conclude simply by pointing out that in order to treat successfully any case of surgical malady, it is first of all important to understand its causes. To administer medicines or injections to cure irritation of the bladder will be unavailing as long as a stone is left in the cavity. That some such defect lies in the prevalent treatment appears evident from the sort of despair which the practisers of that method express. Of such defect I have long been aware; and it has therefore been with me the work of a good number of years to elucidate the true pathology of lateral curves, and to adapt thereto a direct and beneficial treatment.



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### ON

## THE MECHANICAL TREATMENT OF ORAL DEFORMITIES.

By ROBERT RAMSAY AND J. OAKLEY COLES.

MODERN discoveries and inventions have allowed the dental profession to progress rapidly during the last ten years in this branch of their science. Mechanical appliances for substituting parts which have been left defective by congenital malformation, or for restoring parts which have been carried away by disease, can now be so perfectly replaced artificially that an account of the two following cases may be interesting to surgeons generally, and particularly to those members of the profession whose special practice may have brought them in contact with similar deformities; for, as will be demonstrated as we proceed, the deficiency or loss of substance was so great that surgical treatment of either of them would have been impossible. These cases will we feel assured, be the more interesting when we say that such or others very similar are far from being uncommon.

There are, however, special as well as characteristic features in both the cases we now have to describe. Both were the result of disease. In one case the loss by ulceration was exclusively confined to the left palate; while in the other a large portion of the superior maxillary bone was destroyed, the soft palate remaining perfect from being untouched by the ravaging disease so closely adjacent.

The treatment of these cases was not unaccompanied with peculiar difficulties. In regard to the former they were: (1) the aperture being confined entirely to the soft palate, there was no firm base for receiving and keeping in its place such a delicate instrument as it was necessary to employ; (2) the degree of elasticity required in that portion of the instrument which would have to cover the edges of this fissure; and (3) the necessity for producing a perfect closure, without at the same time causing any painful irritation by pressure, for this would have induced, in all probability, a return of ulceration, and thereby caused further loss of parts. It was not less important for the comfort of the patient than it was for the credit of the operator, that these points should be studiously and steadfastly kept in view.

FIG. 2.

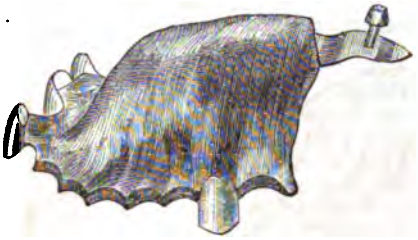


FIG. 2 *a*.

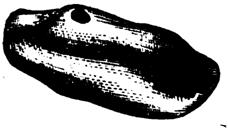


FIG. 3.

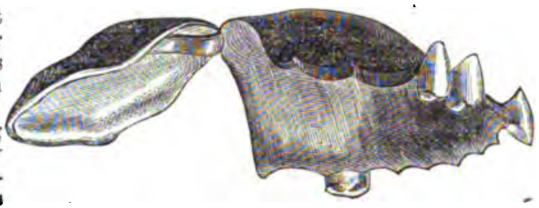
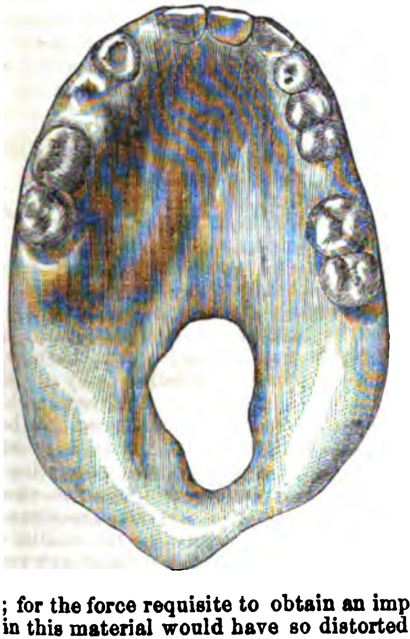


FIG. 1.



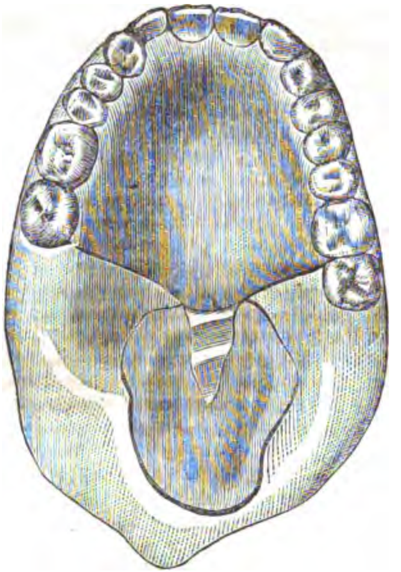
The means that were adopted for overcoming these self-evident operative difficulties may now be briefly related. In the first place, as the professional reader will judge, perfect impressions of the injured parts were necessary. These could not be taken, however, by the usual process adopted by dental surgeons—viz., by the use of wax; for the force requisite to obtain an impression in this material would have so distorted the soft palate from its normal or resting form, that any model thus taken would have been altogether untrue, and therefore valueless. The use of plaster Paris was then the only alternative left. By introducing this substance in a form so liquified that it was of the consistency of thick cream, the pressure required to pass enough of it above the edges of the fissure did not displace the most delicate folds of mucous membrane. In a few moments it was sufficiently set to be withdrawn, and on inspection a model was presented, not with a "dragged" appearance, as a dentist would term an unsatisfactory attempt, but with clear, sharp, and well-defined outlines. Thus a model, which contained an accurate impress both of the dental arch and what remained of the soft palate, was secured. From a drawing of a cast taken from a model, we are enabled to present, in Fig. 1, an exact copy of the upper part of the patient's mouth as it was presented to us for treatment.

By working to this model, the required moulds were made for receiving the material to be shaped into form. This material was a composition of india-rubber prepared for vulcanising. The plug—if we may use so plain a term, with a view to be clearly understood—was necessarily of a most flexible quality of this compound; while the front part of the instrument, which would have to carry the teeth to be replaced, as well as the plug, was of the usual ebonite quality employed in dentistry. The supple yet unalterable character of the one part, and the rigid, indestructable condition of the other, are suggestive examples in juxta-position for showing the incalculable value of india-rubber, indicating as they do the numerous and efficient uses to which it may be turned. The above Figures (2 and 2*a*) will show the bearer of the plug and the plug itself in detached parts.

The next illustration (Fig. 3) shows the instrument in a complete form for inserting in the mouth. Here we may incidentally remark that, as the elastic portion is made in a metallic mould, it may be duplicated in any number; and so easily may this be done that in this instance the patient, who was going to India, was provided with a mould and a small vulcanising apparatus, whereby he was able to construct a new plug when necessary.

Simple as this instrument may appear when thus presented, we may say it required some weeks' close application to bring it to this degree of perfection. When the moulds were satisfactorily completed, however, the remaining processes were readily accomplished. The hard rubber front piece (Fig. 2) fitted so perfectly that it was kept firmly in its place by the power of suction, at the same time that it pressed the plug (Fig. 2 *a*) upwards with equal consistency. The whole instrument, when *in situ*, presented the appearance which is conveyed in Fig. 4.

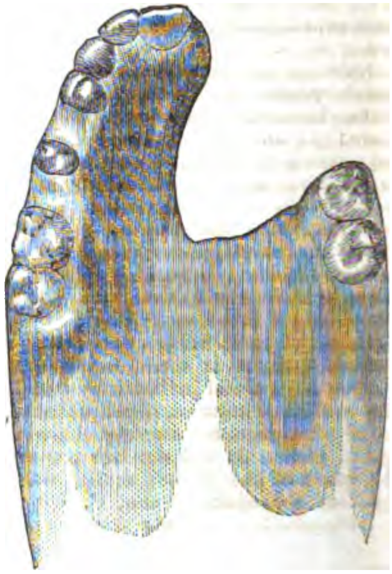
FIG. 4.



The result of the instrument being in its position was highly satisfactory to ourselves, as well as to the patient. The gap was kept perfectly closed, even when the muscles were subjected to strong action, and this without any chafing of the parts on which the plug pressed. Under these conditions, the symmetry of the mouth having been fairly restored, its natural functions returned. Deglutition, which had previously been both difficult and painful, from food passing the fissure and lodging above the palate, was now proceeded with in ordinary comfort; while articulation, instead of being very defective in tone, from sounds escaping through the posterior passages of the nares, in a short time resumed the character which belongs to perfect organs. Indeed, the delay in this particular arose more from the time which was required for the tongue to get adapted to the instrument than from any shortcomings in the instrument itself.

A description of the second case, and the way it was treated, may be given in a few sentences. A model of the mouth was obtained in the way already described. The accompanying woodcut (Fig. 5) is an exact model of the case as presented for treatment. In this case there were certain obvious difficulties of a totally different character from those presented in the previous one. Here the bone was entirely gone to the floor of the orbit. Fortunately, however, the entire length of the nasal septum was left intact. But, as it will have been inferred, deglutition was very troublesome, and speech scarcely intelligible.

FIG. 5.



In operating, the principal difficulty which presented itself was the small surface on which suction could be produced. There was, however the advantage of a considerable overlap at the posterior portion of the gap. By making an instrument in two parts, as shown in Figs. 6 and 6 *a*, the mouth was so far restored as to be completely efficient for purposes of mastication and articulation. The right hand drawing (Fig. 6 *a*) represents the hard rubber portion carrying the required artificial teeth; while the left hand drawing represents the elastic rubber portion, which served to restore the contour of the countenance and to stop the passage of air and fluid from the mouth to the nares, and *vice versâ*. The two parts, as connected by the platina pin (shown in Fig. 6 *a*) are represented in Fig. 7.

FIG. 6.

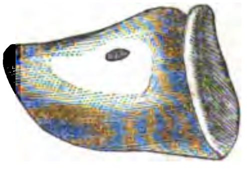
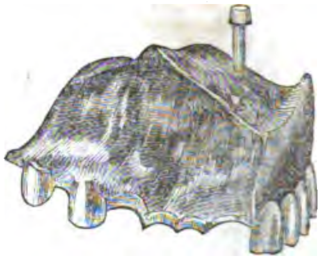


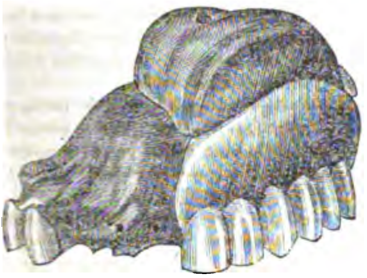
FIG. 6 *a*.



The mouth in its artificially restored form is shown in our last illustration (Fig. 8.)

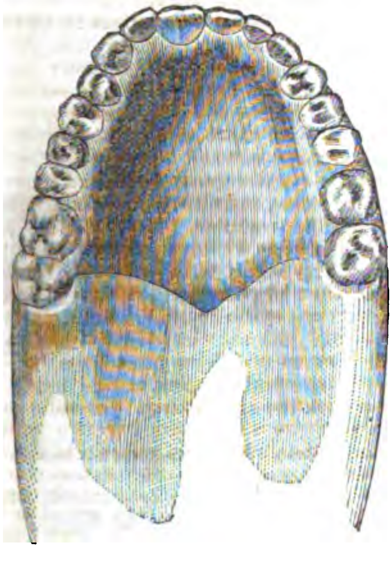
In conclusion we may briefly revert to one or two important or special points in the required practice attending these cases. The great advance made in treating them is largely—indeed, we may say, almost entirely—owing to the introduction of vulcanised rubber into this country. The various qualities into which this substance can now be tempered are a great triumph for scientific inquirers and of artistic skill. It is now so perfectly prepared that it may be used in the mouth without unpleasantness or danger. When hardness is required, it can be made as rigid as bone; and when suppleness is neccessary, it can be made so soft and velvety as exactly to resemble the part of the body for which it is required to act as a substitute. While, too, this elasticity and softness are imparted, so springy does it become that no reasonable amount of pressure will prevent it, on being again set free, from returning to the exact form it was of when taken from a mould.

FIG. 7.



Another important point is the method of depending on suction for the support of these instruments, instead of trusting to natural teeth for a bearing, which must in consequence be ultimately injured. This is a step in advance in conservative dentistry which has not yet been sufficiently recognised. And not less so is the practice of taking impressions in plaster of Paris, instead of wax and other old- and new-fashioned plastic compositions.

FIG. 8.



With these agents at his command, and the required skill in using them, the dental surgeon may treat almost every case of deformity to which the mouth, from accident or disease is liable.

## IS CATARACTOUS DISEASE CURABLE WITHOUT OPERATION?

By JABEZ HOGG, Esq.,

Senior Assistant-Surgeon to the Royal Westminster Ophthalmic Hospital, Etc.

THE treatment of cataract has deservedly occupied the attention of men eminent in our profession; and it has been repeatedly stated that, by medical agency alone, some have not only arrested the progress of the disease, but effected its complete cure. A notable personage of this school was a Prussian oculist, consulted at one time by high and low, and who doubtless practised largely upon the credulity of the public. But the latest and most noteworthy writer on the subject was a man of the highest eminence in the scientific world: I refer to the late Sir David Brewster. This philosopher, in the year 1836, contributed papers to the Reports of the British Association "On the Theory and Cause of Cataract;" another paper by the same author, and which in my opinion is a most remarkable one, appeared in the "Transactions of the Royal Society of Edinburgh," 1865, "On the Cause and Cure of Cataract," in which he tells us that he cured himself of an incipient attack, which for "some time had been the means of causing him annoyance and anxiety."

Statements of the cure of the incipient stage of cataract, coming from one who deservedly ranked so high as an authority upon all matters appertaining to optical science, as well as that belonging to the physiology of vision, and whose reputation as an original investigator is European, should be received with that amount of respect and confidence due to so distinguished a philosopher.

I have good reason for believing that from the increase of population and other causes arising out of our civilisation, the formation of cataract is on the increase; it is, therefore, of as much importance to be able to arrest the progress of the disease, as by the aid of the ophthalmoscope to detect it in its earliest condition. Before I had the opportunity of attentively perusing Sir David's paper, I wrote to him asking for the fullest information, which he gave me.* Three years have now passed away since I put his treatment to the test of experience, both in hospital and in private practice. I shall presently proceed to give a brief summary of the results obtained. It is necessary that I should first refer to the paper of Sir David, as it appears in the Royal Society of Edin. "Trans.," and then we shall see how it was that his attention became directed to the question:—

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* ***Extract from letter*, *Jan. 30th*, 1865,—The cure is effected —1st, by the repeated evacuation of the aqueous humor, in the hope of a more healthy secretion being supplied; or 2nd, by injecting water, or a fluid equivalent in composition to the healthy aqueous humor; 3rd, by injecting, in cases of soft cataract, a fluid containing more albumen than exists in the aqueous humor, if simple evacuation is not successful. The powder used by me is the Pulvis Salinus compositus of the old Edinburgh Pharmacopœia."**

"Writing from memory," says Sir David Brewster, "about forty years ago I experienced an incipient attack of cataract, and was thereby called to study its progress and cure. While engaged at a game of chess with a friend I amused myself at intervals with looking at the streams of light which appeared to radiate from the flame of a candle in certain positions of the eyelids. Observing this for a short time I was not a little surprised to find the flame of the candle surrounded with lines of light of an imperfectly triangular form, some parts of which were deeply tinged with the prismatic colors. On another occasion, while walking home, I observed figures move distinctly round the moon and other sources of light; and upon making a careful examination I soon discovered that all this proceeded from the crystalline lens, which had become slightly separated near its centre, the fissures extending towards the margin into the laminæ."

This condition of the lens Sir David believed to be due to the "albuminous fluid, the liquor Morgagni, which so wonderfully unites into one transparent body as pure as a drop of water the mass of toothed fibres which compose the crystalline lens. These not being sufficiently supplied with fluid, if this process of desiccation continued, the whole laminæ of the lens would have separated, and that state of white opacity would be induced which no attempt has ever been made to remove, except by operation."

Speculating upon such a state of things, whilst he received no benefit from the remedies employed by his ordinary medical attendant, and "knowing the sympathy between the eye and the stomach," Sir David ultimately determined to make trial of the pulvis salinus compositus, and in about eight months from the date of the first administration of the remedy all the apparitions that had so long annoyed him disappeared, and, curious to relate, "the laminæ of the crystalline body were suddenly brought into optical contact."

Sir David, further speculating on the process by means of which the crystalline is supplied with the necessary quantity of fluid, came to the conclusion "that it might be derived from the aqueous humor, and thus cataract might be produced when there was too little water and too much albumen in the fluid which filled the aqueous chamber;" and upon this hypothesis he argued that incipient cataract might be cured in two ways:—

1st. By discharging a portion of the aqueous, in the hope that its fresh secretions might contain a less proportion of albumen, and so counteract the desiccation of the lens.

Or 2nd. By injecting distilled water into the anterior chamber after evacuation, to supply the quantity discharged, and thus change its specific gravity.

The first of these methods is well known to be both practicable and safe, and the fact that conical cornea is often treated by tapping, and that the aqueous is as often and as speedily renewed, must have suggested this course of treatment. Injecting distilled water into the anterior chamber had also been resorted to without having been productive of injury of any kind. Sir David had frequently experimented upon dead eyes, and, having immersed them in water, found that the water readily passes through the elastic laminæ, and in the course of a few days the capsule is seen to rupture and break up. Such a phenomenon seemed to him to have a bearing of obvious importance "in reference to the cause and cure of at least two kinds of cataract." The aqueous, too, he argues, "is in immediate contact with the capsule of the crystalline. When, therefore, the humor contains too little water, the lens has not a sufficient supply of the fluid which keeps its fibres and laminæ in optical contact, and hence the laminæ separate, and the lens become opaque and hard. When, on the contrary, the aqueous contains too much water, the capsule permits the excess to pass into the lens substance, and produce the affection called soft cataract."

In order, then, to cure the first of these kinds of cataract, "we must discharge a portion of the aqueous humor, and either supply its place by injecting distilled water," or leave it to nature to supply a secretion made more healthy by the administration of certain saline remedies. To cure the second kind of opacity, we must supply the place of the discharged humor with a solution of a different density, containing albumen; or, as in the former case, leave to nature the production of a more albuminous secretion.

In the foregoing extracts I have presented the substance of Sir David Brewster's paper, which seems to have attracted but a small amount of attention from those practically and specially engaged in ophthalmic medicine.

I have now notes of a great many suitable cases treated by "the saline plan," but regret that I cannot add that any of my patients appear to have received benefit from its use. It occurred to me, however, that by combining some form of iron with the saline some good might be done. I have accordingly made trial of various preparations of the kind, and fair results have attended my trials; but I cannot say that I have succeeded in removing opacity when it has proceeded to the extent related by Sir David—namely, the formation of striæ; yet I am confident that in some few instances I have delayed its further formation, and prevented it passing beyond the incipient stage. Whether the disease in such cases is permanently arrested time alone will reveal.

I have no intention of occupying valuable space by following Sir David throughout in his speculations. It is sufficient to know that there remains much to be made out and many points to be cleared up before the truth can be ascertained. The practical bearing of such valuable experimental researches as those of Dr. Richardson, Dr. Mitchell of America,[*] and others, must, doubtless, take us many steps towards a rational interpretation of the disease, and ultimately, it is to be hoped, help us in its treatment. Early failure in the powers of life is, as we know, a direct associate of cataract. This seems to have struck Sir David Brewster when he observes: "It may arise from the general state of the health." But if the change be frequently one associated with anæmia and lowered powers of life in some form or other, should we reasonably expect to find much good resulting from the administration of salines, pure and simple?

Dr. Richardson's late experiments seem to give an answer to this question. He believes that cold and salines produce a similar action on the animal body. "Salines," he says, "act only by one process, that of removing from the nervous centres and the body at large so much caloric, which they take up and augment to a given extent, then cause fluidity; and as they retain the same fluidity and heat until they are excreted, so they carry off as much caloric as they have seized, and defininitively reduce the temperature." This may be shown experimentally by freezing a frog, when the lenses of the eyes at once become entirely opaque. Again, if one drachm of a fluid solution of chloride of ammonium (sp. gr. 1150) be injected subcutaneously into the dorsal sac, the lenses are quickly rendered opaque, which "at once shows an indentity of action between cold and salines."

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[*] Dr. Mitchell was the first, I believe, to give us the "Synthesis of Cataract." In addition to the "sugar cataract," he considered that he had made out other forms, as the "saline cataract," &c; and he had believed he had fairly demonstrated that the cataract he had induced in different animals "was a purely physical osmotic change."

If such experiments prove anything, it is this, that *à priori* we have not much to look for in this direction, and that the uncombined use of salines, such as Sir David recommends, will not be found useful, but, on the contrary, may often aggravate the disease. So much, then, for the saline treatment of cataract.

I will now turn to the second proposal—namely, that of evacuating the aqueous humor by repeated paracenteses corneæ. This has been practised by more than one surgeon, and with a varied amount of success. Dr. C. Sperino,[*] of Turin, published in 1862 an account of forty-five cases of cataract operated upon by him by evacuation of the aqueous, and in which he tells us "cures were effected in some, and in others the sight was much improved."

Dr. Chas. Reymond, of Paris, has given this plan a trial in a variety of cases, in cataract and other forms of disease, with, as he tells us, a large amount of success; and a year or two ago I remember having read a similar statement in one of the journals from the pen of a gentleman practising in India, who spoke in the same high terms of the benefits of the operation in his hands. My own experience is neither so great nor so favorable. I have now made trial of this method in some twenty cases, without any advantage accruing to my patients. In those instances in which I thought I had succeeded in benefiting my patients and arresting the progress of the disease, I found I was mistaken, for after a lapse of time they returned to me in a confirmed cataractous condition, which nothing but extraction could be expected to cure. In the cases of several individuals at the hospital, I repeated a paracentesis, some twenty or thirty times in most cases, and in one, a compositor, thirty-five times, but this ended in complete nuclear cataract. I am unable to refer to a single case as yet that has appeared to receive permanent benefit from this mode of treatment. I admit that the cases selected by myself for a trial may not have been so exactly suited for the operation as those which fell under the care of Dr. Sperino and others.

The subject, however, is so thoroughly interesting as one of surgical and scientific inquiry, that it will seriously engage my attention, as it will no doubt also that of others whose professional engagements or scientific pursuits may afford them motive and opportunity.

**Bedford-square, March, 1868.**

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### ON THE

# TREATMENT BY MANIPULATION OF DISLOCATION OF THE THIGH BACKWARDS, OR IN THE ISCHIATIC NOTCH.

By George W. Callender, F.R.C.S.,

**Assistant Surgeon to, and Lecturer on Anatomy at St. Bartholomew's Hospital.**

There has recently been under my care in St. Bartholomew's Hospital a case of dislocation at the hip which was in itself of considerable interest, and suggested for consideration several questions relating to the reduction of similar luxations to which I propose to refer in connexion with its history.

A well-built, robust laborer, aged thirty-five, met with an accident on a line of railway in the course of constriction near New Malden. Some overladen trucks, in one of which he was riding, whilst passing under a temporary bridge, displaced the timbers laid across the line. The cars left the rails, and owing to the confusion of the accident the patient was quite unable to account for the manner in which he received his injuries. Unable to rise, he was picked up by some comrades and removed to a neighboring town, where he was treated for a dislocation at the hip. The following morning, the dislocation, proving difficult of reduction, he was sent up to the hospital.

There was no doubt as to the nature of the hurt; suffice it to say that the head of the bone lay low down in the ischiatic notch, and that the displaced femur—by pressure, I presume, upon the sciatic nerve—kept the patient in constant and great pain. The thigh could be freely moved by the surgeon in any direction save that of abduction, but the patient himself had no power over it. The looseness of the parts about the hip was doubtless accounted for by the manipulation which had already been used in endeavoring to reduce the luxation.

The same afternoon the patient was removed to the operating theatre and brought under the influence of chloroform, but as the head of the bone could not be replaced after a fair trial, further attempts at reduction were deferred until the following day, when I tried, but without success, to reduce the dislocation by manipulation and also by extension with pulleys.

Very much vexed at the failure of these attempts, I was at the time disposed to think that the position and extent of the rent in the capsule might be the source of difficulty. The capsule might be interposed, curtain-like, between the head of the femur and the acetabulum, or the rent in the capsule might be so situated that the head of the bone could not be brought opposite to, or directed so as to pass through it. But on looking more closely into the question, I am of opinion, from the evidence we possess, that the capsule could not in this instance, and indeed that it never can, offer any obstacle to the reduction of dislocations at the hip. As Sir Astley Cooper says, the idea of the neck of the femur being girt or confined by the capsule is quite untrue; the violence, indeed, which causes the dislocation (I write only of dislocation the result of violence), and which forces the bone through the capsular ligament, ensures also that the latter shall be torn to pieces. An account of a rare form of dislocation on the tuberosity of the ischium has been given by Mr. Wormald, who has also described the specimen which is in the museum of our hospital. It may be referred to as showing the great damage sustained by the capsular ligament. In a dislocation of the femur upon the ischiatic notch, which occurred three weeks before death, the opening in the posterior part of the capsule is widely torn, although its size has been reduced by partial union. In a recent dislocation upon the lower edge of the obturator externus muscle the laceration of the capsule on the inner (obturator) and lower sides is extensive; and in a fourth case,* one of dislocation in the ischiatic notch, the capsule is described as widely lacerated by the head of the bone, and the rent is so considerable that it is evident the ligament could offer no obstacle to the reduction of the displaced femur. I have looked through the specimens in the museums of several of the London hospitals, and I find that they show just the same state of the parts, tearing off the capsule to a great extent, and a free passage for the head of the bone into the acetabulum.

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[*] Sir D. Brewster, in a letter to me, notices the work of Sperino in the following terms: "Since my paper was read, I have received a volume of 300 pages from M. Sperino, of Turin, on the cure of numerous diseases of the eye, especially cataract, by evacuating the aqueous humor. He seems not to have seen what I had written on the subject." Dr. Sperino apparently takes a rather different view of both cause and effect in cases in which he has employed tapping. He believes that the cataractous condition much depends on some disturbance in the intra-ocular circulation; that even a congested state of the choroid may produce opacity of the lens; and that by resorting to early tapping the pressure is relieved, and the opaque fibres regain their transparency. The operation consists in making a small puncture with a grooved needle near the margin of the cornea, or at its junction with the sclerotic, and allowing the aqueous to slowly drain off.

Dr. Fenner has, however, recorded an instance of a rent in the capsule (which was half torn through) through which the head of the bone could not be forced, even when the parts were tested at a post-mortem examination. Such a case must be exceptional. I do not consider our present pathological experience would justify us in thus explaining any failure in the reduction of a dislocated hip.

Not long ago I examined a recent dislocation at the shoulder, and found the head of the humerus driven through the subscapularis, so that the neck of the bone was tightly surrounded by muscular fibres; and I have seen with Mr. Wormald a dislocation of the radius forward which could not be reduced because, as we thought at the time, the bone had been forced through, and its neck nipped by the supinator radii longus. So also it is just possible that with luxation at the hip, muscular fibres may interpose and hinder the return of the head of the bone into its socket; thus in Wallace's case the edge of the glutæus medius passed over the head of the femur, and in a case related by Mr. Syme the head of the thigh-bone was imbedded in the substance of the glutæus maximus. I do not lay much stress upon the difficulties which may originate in such conditions as the preceding, but they are worth a passing notice, as also is the hindrance to reduction which has been known to result from locking of the head of the bone when deeply placed in the ischiatic notch, as in one of the cases recorded by Mr. Wormald.

Sir Astley Cooper has described the difficulty which attends the reduction of dislocation on to the ischiatic notch, but I am not aware that any explanation of this difficulty has been offered, save the one which he refers to in describing the distance which the head of the bone has to travel outwards from the fossa of the ischium before it can be lifted over the edge of the acetabulum. Hence the stress which has been laid, since his observations were published, upon the importance of endeavoring to lift the head of the bone upwards and outwards whilst extension is being made.

There is, however, one very evident obstacle to the reduction of this class of dislocations to which attention may be directed, as it seems to give the only fair explanation of the difficulties which are experienced in the treatment by extension as well as by manipulation. When the head of the bone lying on the ischiatic notch is pulled forward by extension, it is drawn over the convex outer surface of the acetabulum; but instead of passing towards the socket it happens, from the formation of this part of the pelvis, that it can follow an easier route which is open to it. From the lower part of the great sciatic notch a broad, smooth, pulley-like surface leads to, and then curves round, the inferior border of the acetabulum, and thence ascends towards the obturator foramen. The obturator internus above, and the great sciatic nerve, and the upper border of the obturator externus below, rest within it; but between these the groove is covered with fat, and from its surface fibres of the capsular ligament take their origin. If the head of a femur be placed in its corresponding pelvis in this groove it will be seen how accurately the convexity of the head of the bone fits the concavity of the ischium. If also the head of the femur be placed on the sciatic notch, and is then moved towards the socket, it will be found that it slips over the convex outer surface of the acetabulum, and is directed into and along the groove just referred to; and this I believe must happen when extension is employed for the reduction of these dislocations—the head glides below the socket, and slips up again when extension is remitted. In attempting to replace the femur by manipulation, as this operation is usually practised, by the rolling outwards of the shaft, the head is also carried along this groove, its progress through which may be traced easily enough, and incurs the risk of passing round the acetabulum, so that the head, when the thigh is extended, comes up on the obturator side, or rises even to the pubes, having described a half circle below the socket. This rolling of the head round the acetabulum is a chief objection to the plan of reduction by manipulation, and is almost sure to occur if the thigh is rotated outwards; in this way the ischiatic nerve has been seriously crushed, and the bruising of the parts has been such as to give rise, in one instance at least, to subsequent disease of the hip joint.

To return to the case before us. After the patient had rested for several days I adopted the following plan:—The thigh was bent upon the abdomen, and I slowly moved the limb into a straight line with body, so that the head of the bone could be felt projecting in the buttock, outside the tuber ischii. The limb, in a straight line with the trunk, without allowing any rotation outwards, was then drawn forward from the abdomen, and forced downwards (extended), and the head of the bone at once slipped into the acetabulum. These movements were made slowly and steadily, and the limb was extended with care, remembering the great leverage which we were making use of, and the position of the head, which was being pressed up into the socket. In two recorded cases the neck of the femur has been broken under a somewhat similar strain.

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* These specimens are in the museum of St. Bartholomew's Hospital, Series iii., Nos. 56, 20, 25, 68.

If these manœuvres are examined by the help of the skeleton, it will be found that by flexion, and by moving the thigh into a straight line with the body, the head is brought from the notch into the groove just above the outer side of the tuber ischii. Here it is opposite the least prominent part of the lower edge of the acetabulum, and if the femur is depressed whilst in this position the head easily slips into the socket. Dr. Markoe,* with the addition of a rocking movement as the thigh is extended, and Dr. Hamilton, employ somewhat similar manœuvres, and they speak favorably of their success.

I have been anxious to give some explanation of the manner in which the method by manipulation acts, and to insist upon the importance of not abducting or rolling the limb outwards, for if this is done the head of the bone is almost certain to roll past the acetabulum to its inner side; or if an obturator dislocation is under treatment, and the thigh is rotated inwards, the head of the femur will, as I have several times seen it, roll round on to the ischiatic notch, just reversing the movement which takes place when an ischiatic dislocation is improperly manipulated.

Three steps complete the operation. First, the thigh is bent on the abdomen; secondly, it is brought into a straight line with the long axis of the body; thirdly, it is forced down (or extended) in a straight line, parallel with its fellow The dislocation is thus reduced without difficulty and without the need of any assistant. And, what is of chief importance, the operation avoids all risk of rolling the head of the bone round the acetabulum, an accident which is so apt to complicate manipulation as commonly practised.

Queen Anne-street, Feb. 1868.

# ON THE DIAGNOSIS OF SCABIES.

By C. Hilton Fagge, M.D., M.R.C.P.,

Assistant-physician to Guy's Hospital.

Although the detection of the itch is, as a general rule, easy to the practitioner of the present day, cases are sometimes met with in which there is considerable difficulty in arriving at a certain diagnosis. In the present brief communication it is my object to refer to some instances in which such difficulties have occurred, and to describe a method which I have recently adopted, and which will, I think, very much facilitate the discovery of the acarus scabiei in a particular class of cases.

The fact that a patient has the *itch* is sometimes overlooked in consequence of the *itching* being slight, or even altogether absent. I have lately seen a case of this kind. A young gentleman came to me with an eruption which he said was supposed to be "suppressed gout." The account of his case which he gave me was as follows:—He had for many years had an eruption at "spring and fall." It had come out last October after a fifteen-mile walk, done in three hours, and since then it had gradually spread from the legs over his body. The irritation had at one time been very severe, but latterly it had been quite trifling. The amount of itching was to a great extent influenced by his diet; it was much increased by drinking bitter ale, sherry, or claret, although port-wine or stout could be taken without inconvenience. Long intervals between the meals also augmented the irritation, and it was raised to a maximum by Worcester Sauce and by onions. After eating a single onion no sleep could be obtained. By regulating his diet and meals, however, he had been able to overcome the irritation; both it and the sleeplessness had also been materially lessened by taking the tincture of perchloride of iron, and afterwards the fluid extract of sarsaparilla. He had used no external applications whatever.

I understood this gentleman to say when he consulted me that he had then no itching at all. He certainly made no complaint of itching. However, a glance at the hands showed me that there were very numerous cuniculi. I endeavored to extract acari from some of them, but in this I did not immediately succeed. I therefore adopted a plan which I have often found to answer well. I scraped with a knife the loose edges of the burrows which I had opened, and placing the scrapings beneath the microscope, I at once found an egg. The diagnosis was therefore placed beyond question, and in two or three days the patient was well. It is, of course, no uncommon thing for scabies in an early stage to be overlooked, and for the appearances to become more characteristic while the patient is taking medicine; so that a medical man freshly called in can hardly fail to discover the real nature of the disease. But this case appears to me to be of interest, as showing to how great an extent the irritation may be lessened by regulation of the diet, and even by internal treatment.

In the course of last summer there was admitted into the Clinical ward of Guy's Hospital, under my care, a case of pemphigus, which turned out to be caused by the acarus scabiei. The case is so far as I know, unique. In the "London Hospital Reports," (vol. i., p. 159,) Mr. Jonathan Hutchinson has drawn attention to the fact that scabies may be mistaken for pemphigus, the vesicles between the fingers being occasionally as large as split peas. But in my patient one of the bullæ was as big as a hen's egg.

The following is the history of the case, taken by my clinical clerk, Mr. Branford Edwards:—A. E——, aged thirteen, has had an eruption on her skin for about a year, ever since an attack of fever. For the last six weeks large bullæ have appeared on the arms and legs. They come out one or two at a time, and burst after two or three days, leaving ecthymatous sores. At the present time there is a bulla, the size of a hen's egg, over the inner surface of the left tibia, and numerous large crusts are scattered over the legs and arms.

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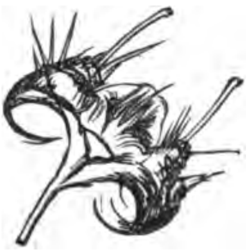
* New York Journal of Medicine, 1855.

Upon the elbows are several pustules. Between the fingers are several small scattered vesicles, very like those observed in scabies. The girl, however, declares that she has no itching whatever about the fingers, although she admits that an inflamed patch covered with crusts, situated near one wrist, gives rise to itching.

On the most careful examination I failed to discover any burrows of acari about the hands or on any part of the patient's body. But with a magnifying glass I thought I could see slight whitish lines on some of the vesicles between the fingers. I therefore cut off the summits of these vesicles and placed them beneath the microscope. One of them was found to contain a little brown body, evidently the framework of the head and forelegs of an acarus. I made a rough drawing of it, as seen by the one-eighth objective of an Oberhäuser microscope. From my sketch the subjoined illustration is copied.

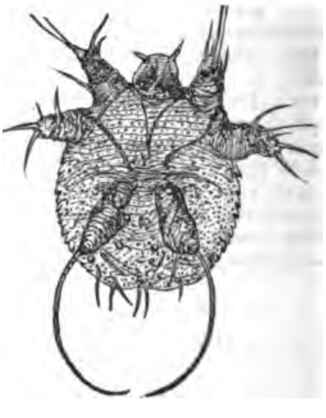


The little white lines which I had seen on the summits of the vesicles were therefore moulting-gallaries. No further evidence of the presence of the itch-mite was discovered; but sulphur ointment at once cured the eruption. I saw the girl frequently for several weeks, and she never had any return of it. Since that time I have on two or three occasions found precisely similar portions of the cast-off skin of the acarus, and I think that the recognition of them is likely not unfrequently to aid in the diagnosis of the disease.

It may be remarked that in both these cases, in which the itching was slight, the ordinary papular and vesicular eruption of scabies was scanty. This bears upon the view, so strongly maintained by Hebra, that the cause of the eruption in scabies is, not the irritation produced by the acarus, but the irritation set up by the finger-nails in scratching. It is, however, possible to regard the facts in another light. It may be argued that the scantiness of the eruption is not the *result* of the absence of itching and of scratching, but that all these are due to a want of susceptibility on the part of the patient's skin, in consequence of which the movements of acari within its substance neither affect the cutaneous nerves (so as to cause itching), nor irritate the other cutaneous tissues (so as to give rise to inflammatory action).

Contrasting with the cases hitherto referred to, there are other examples of scabies in which the discovery of the acarus is rendered difficult by the numerous vesicles or pustules, by the extensive inflamed patches, and by the large crusts which are present. The affection is, in fact, an eczema, or an eczema impetiginodes; and the underlying scabies is apt to be overlooked, and may, indeed, be far from easy of determination, even when the observer is alive to the probability of its existence. Some months since it occurred to me that in such cases it might be possible, by chemical treatment of the crusts, to dissolve or render transparent the other matters contained in them, and yet to leave undissolved any acari that might be present. I had soon an opportunity of trying the experiment. A patient was admitted into Guy's Hospital, under the care of Dr. Habershon, for scabies complicated with eczema impetiginodes, covering a large part of the cutaneous surface, but especially severe on the hands and wrists. I removed a few pieces of the crusts from the hands and forearms, perhaps amounting altogether to as much as would lie on a shilling. These crusts I boiled in a solution of caustic soda (half a drachm of the solid hydrate to an ounce of water) until they were in great part dissolved. I then allowed the fluid to settle, poured off the supernatant liquid, and proceeded to examine the flocculent deposit which had formed. I soon found an acarus, or rather the skelton of one (for I suppose the soft parts had been dissolved) in a most perfect condition. The animal was a young one, having only two hind legs, and being considerably smaller than the adult mite, with which everyone is familar. Subsequently I found two other young acari, as well as one egg, one egg-shell, and the cast-off head and fore-legs of an adult mite Mr. Frederic Durham also succeeded in discovering in part of the fluid nine other young acari and three or four eggs.

The accompanying graphotype figure is from my drawing of one of the young acari. It should be observed that the dots on the surface were made simply by way of "shading" the sketch.



The suckers at the extremities of the forelegs were perfect in the specimen itself, although they are somewhat defective in the figure.

In this particular instance there was no difficulty in making a diagnosis of scabies in the ordinary way. Although on a cursory examination I did not at first observe any burrows, I found several a day or two later, when I scrutinised the parts more carefully. But sometimes it is by no means easy to determine whether or not a patient affected with a diffused eczema has the itch as well; and in such cases I think that the above-described method of detecting the acarus is likely to be of considerable service. I was led to select a solution of soda, rather than any other chemical agent, for the purpose of dissolving the crusts, by remembering that it had been recommended by Dr. Fenwick to facilitate the discovery of particles of lung-tissue in the sputa of phthisical patients. Although it has no direct bearing on the subject of the present paper, I may observe that a similar plan may perhaps afford valuable aid in determining whether a patient has a simple abscess of the liver or a suppurating hydatid cyst. Among the immense numbers of pus-cells, one has scarcely any chance of discovering remains of echinococci. But after boiling the fluid with soda, so as to dissolve the pus, it would probably be easy to detect the hooklets. I have already in one instance made trial of this plan. The result was negative; but I had reason to suppose, on other grounds, that the case was one of simple hepatic abscess.

Another point of view from which the above-described method of discovering acari possesses considerable interest has reference to the large number of acari which were found. As I have already stated, the quantity of crust used was but small, and certainly not more than half of the sediment obtained was searched with the microscope; yet in this we found twelve acari, as well as four or five eggs. There seems no reason to doubt that the mites which we discovered had been alive when the crusts were removed from the patient's skin; for they were all young, none of them having reached that period in their development at which sexual characters are acquired. The observation, therefore, tends to show that crusts from a patient with scabies are likely to contain living acari, and are, therefore, capable of communicating the disease. This is a point on which there has been some doubt. Hebra speaks by no means confidently on the subject. He admits the probability that young acari and males may sometimes be present in the crusts; but states that experimental endeavors to propagate scabies by means of the crusts have hitherto failed. Finally, I may remark that, by my method, specimens of the young six-legged mite may be much more easily obtained than by the plans recommended by Hebra and Gudden; and it is probable that male acari also may hereafter be found in this way, although I have not as yet succeeded in discovering them.

Union-street, Southwark, March, 1868.

## IODINE AN ANTIDOTE TO STRYCHNINE;

AND ON

## THE IMPROPRIETY OF PRESCRIBING QUININE OR STRYCHNINE IN COMBINATION WITH TINCTURE OF IODINE.

By Henry Wm. Fuller, M.D.,

Senior Physican to St. George's Hospital.

In the course of my practice it has often occured to me to prescribe a mixture containing quinine or strychnine, together with tincture of iodine. No chemist to whom I have spoken on the subject has been aware of any incongruity in the mixture, and few have reported any difficulty in dispensing it. Last summer, however, Messrs. Twinberrow called my attention to the fact that it is impossible to dispense a mixture containing quinine and tincture of iodine without an immediate deposit of an insoluble iodide of quinine, which is precipitated—according to the degree of concentration of the mixture, and to the sequence in which the ingredients are mixed—either as a fine brown powder or in large flakes of a dark brown color. More recently, while seeing a patient in consultation with Dr. Williamson, of Mildmay-park, I suggested the administration of a mixture containing a drachm of the liquor strychniæ, two drachms of dilute hydrochloric acid, and two drachms of tinctura iodi. Mr. Young, the chemist of Ball's-pond-road, to whom the prescription was sent, observed that a dark flaky precipitate was formed on the addition of the tincture of iodine, and wrote to me, saying: "In whatever sequence the ingredients are mixed, I find that the whole of the strychnine is precipitated by the tinctura iodi; indeed, so strong is the affinity between these two ingredients that the two fluid drachms of tinctura iodi are capable of decomposing six fluid drachms of the liquor strychniæ, producing an insoluble compound of iodine and strychnine."

With a view to test the accuracy of this statement I have repeated Mr. Young's experiment, and I find it in every respect strictly correct. If one drachm of tinctura iodi is added to a solution of three drachms of liquor strychniæ in four ounces of water, the mixture speedily becomes colorless and almost loses its bitterness, and at the same time a dark-brown flaky precipitate of iodide of strychnia takes place. The addition of iodide of potassium, or a large quantity of spirit, will not serve to prevent the precipitation.

Now it is obvious that, for medicinal purposes, a mixture in which such a precipitate occurs must be almost valueless. The patient not only loses the benefit of the quinine or strychnine, but of the iodine also. It is not unreasonable, therefore, to lay down as a rule, that tincture of iodine ought not to be prescribed in a mixture containing either of the above-named alkaloids. Probably a similar reaction would take place with other alkaloids, but of these I have no experience.

Another question of practical importance arises out of this observation: May not a dilute solution of iodine be advantageously given as an antidote in cases of poisoning by strychnine? Neither in Dr. Taylor's work on Poisons, nor in any other work which I have had the opportunity of consulting, do I find the slightest reference to iodine as an antidote to strychnine; but if a drachm of the tincture of iodine of the Pharmacopœia suffices to precipitate and render insoluble no less than a grain and a half of strychnine (three drachms of the liquor strychniæ), it is difficult to resist the conclusion that, if cautiously administered, iodine may prove a valuable and efficient remedy in cases of poisoning by strychnine.

Manchester-square, March, 1868.

A CASE OF

## TRUE MECHANICAL OBSTRUCTION OF THE BOWELS.

By Richard Jeffreys, Esq., M.R.C.S.

Thinking that the following case—although, I believe, unique—might be not only of interest, but of practical value, to some of the numerous readers of The Lancet, I take the liberty of recording it.

A. B——, aged forty-nine, a bleacher by trade, of average height and healthy appearance, and who "had never required a doctor before," sent for me on the evening of Saturday, the 9th of November. He complained of pain in the left side of the abdómen. His bowels had not been moved since the previous Monday (Nov. 4th), on which day he had an attack of diarrhœa. His tongue was slightly furred; but his pulse and condition of skin were almost normal, and he had not been sick. On more particularly examining him, I found in the left iliac region a hard, round, and slightly movable tumour, about the size of a small orange. Handling the tumour produced pain, especially round its circumference.

Suspecting the tumour might be composed of scybala, I ordered the patient a smart dose of calomel and jalap with a little ginger. I also told his wife that she might apply some hot fomentations to the swelling. The purgative acted freely, producing four or five thin evacuations, but made no impression upon the tumour. The constitutional symptoms were more marked than on the previous day; his tongue was dryer, and his pulse accelerated to 100—in short, he was feverish. I ordered him some aperient saline mixture; and still thought the tumour to be not only scybalous, but that the evacuations which had been produced might have found their way through and around scybala.

I saw my patient again on Monday, the 11th, and found all his symptoms exaggerated. Feeling somewhat puzzled over the case, I once more questioned my patient most closely as to how and when the tumour made its appearance. He then confessed to me the following:—"This day week, when I had the attack of diarrhœa, one of my mates told me that if I plugged my bowels with a wooden plug it would cure me. I made a plug, and used it." I involuntarily exclaimed, "Surely it is not there now?" "It is," said my patient; "but it has gone so far up I cannot get hold of it." I immediately placed the man on his side, and, having well oiled the forefinger of my left hand, introduced it per anum. Not until I had introduced the whole of my finger did I feel anything like a foreign body. I at last caught, however, in the hollow of the sacrum, with the edge of *my* nail what I took to be *an* edge of a nail. I said: "There is a nail here." "Yes," answered the sufferer; "I drove a nail into one end of the plug so as to be better able to pull it out!" By dint of a little manipulation I managed to hook down this nail, and then, using my finger and thumb, drew out the formidable affair. The length of the "plug" from the head of the nail was 7 in.—i. e., 5 in. of wood and 2 in. of nail. The circumference measured 5 in. in the middle, and 4½ in. at each end. The nail belongs to the class "tenpenny," and would measure before its insertion into the wood 3½ inches.

My patient began to mend almost from the very instant after I had relieved him of his "plug." He was vastly improved the next day; and on the next day but one, and was at work as if nothing whatever had been wrong with him.

Is it not astonishing what nature will endure? Just fancy this man wearing for eight days in his rectum a tenpenny nail and a five-inch plug! That the mucous membrane of the intestine should have so long resisted the pressure of the nail—resting as it did in the second portion of the rectum—and of the wood, appears to me most marvellous.

Chesterfield, Jan. 1868.

# INTERMITTENT FEVER SUCCESSFULLY TREATED WITH STRYCHNIA.

By John Pearson Nash, M.D.,

Surgeon in H.H. Madras Army.

Having occasionally observed the failure of quinine as a curative agent in some types of intermittent fever, I was induced to try in such cases the effects of strychnia, the elementary substances of which alkaloid are very similar in their action to those of quinia. Before detailing the particulars of treatment, it may be necessary for me to mention that Mercara is the head-quarters of the district of Coorg, and being situated at an elevation of 4000 feet above the level of the sea, the climate is cool and pleasant, though (as at most stations in India at this elevation) extremely unhealthy at certain seasons of the year, and particulary so at a short distance down the Ghaut, where malarial fevers are very prevalent amongst the European coffee-planters residing on estates which a few years ago were dense jungles or magnificent forests.

Case 1.—Mr. J. H——, a coffee-planter, residing on his estate, eighty miles from Mercara, had been suffering from intermittent fever for three months, the paroxysms recurring every third day with great severity, and lasting about ten hours. After having taken large doses of quinine for several weeks without any benefit, he sought my advice, and presented the pale and emaciated appearance of a person who had suffered severely from ague. I prescribed the one-sixteenth of a grain of strychnia, to be taken four times a day, which immediately checked the paroxysms, and the patient was able to return to his estate after having been only five days under treatment, and wrote a fortnight afterwards to intimate that he still continued free from fever.

Cases 2 and 3.—Two daughters of the chaplain of the station had suffered from repeated attacks of intermittent fever, and having failed to derive any benefit from either quinine or the arsenical solution, were at last recommended a change of climate. After two months absence, they returned to Mercara, and again contracted intermittent fever, the paroxysms of which commenced every other morning at six o'clock, and continued until noon. As the age of the young ladies were nine and eleven respectively, only one-thirtieth of a grain of strychnia was ordered to be taken four times a day in some strong infusion of quassia. In six days the younger girl was free from attacks of fever, and in eleven days the elder one had also recovered.

Case 4.—Captain P. J——, the proprietor of a coffee estate in a very malarious portion of the district, who is continually suffering from fever, and over which quinine has long since ceased to exert any influence, was ordered the one-twentieth of a grain of strychnia four times a day. On the eighth day of treatment the patient expressed himself as being perfectly well and free from fever.

Case 5—J. C——, a carpenter in the Mercara Gaol, has suffered severely from repeated attacks of intermittent fever, for which he has taken an enormous quantity of quinine, and has also been treated with the arsenical solution, but without any benefit from either mode of treatment. He was therefore ordered the one-twelfth of a grain of strychnia four times a day, under which treatment he rapidly recovered, and has continued in good health ever since.

I find from some tables prepared by my medical subordinates that in the Regimental Hospital, Gaol, and Civil Dispensary at this station, thirty-seven cases of intermittent fever have been lately and successfully treated with strychina, with an expenditure of a little less than one drachm of the alkaloid, and that the average period of recovery was on the eighth day of treatment; whereas in the thirty-seven preceding cases treated with sulphate of quinia, with an expenditure of fourteen ounces of this salt, recovery did not result until the twelfth day of treatment.

Mercara, India, Nov. 1867.

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### ON

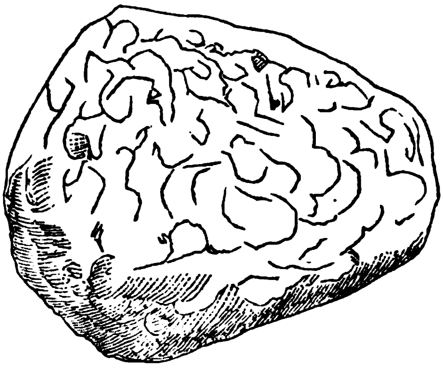
## A CASE OF STONE IN THE BLADDER:

### PECULIAR SHAPE; LITHOTOMY; RECOVERY.

### By Allen Duke, M.D.

A. F——, aged fifty-seven, a strong, healthy yeoman, of a most nervous and irritable temperament, has been the subject of renal calculi for many years, several of which he has passed from the bladder, affording him only temporary relief; but for the last ten or twelve years he has suffered from decided symptoms of stone within that viscus, from which he has at times endured the most agonising pains. I was consequently requested to visit him, when I found his paroxysms recurring almost every quarter of an hour; but, although he had been greatly afflicted so many years, he would not permit the introduction of an instrument till after he had heard of the recovery of an aged neighbor on whom I had recently operated. I sounded him, and with no difficulty discovered a stone of considerable dimensions, and from the severity of his symptoms he was easily prevailed on to undergo an operation for its removal. Previously to this, with a view to subdue the excessive irritability of his bladder, a course of alkalies with sedatives was prescribed, from which he speedily derived so much relief that he was enabled to retain his urine for three hours (a thing he had not been able to do for a considerable time); and would have almost persuaded himself there had been no stone had he not remembered the peculiar noise when sounded.

At the end of about three weeks, the bladder being in a fit state to justify the performance of the operation, and the patient fully under the influence of chloroform, I, with the kind assistance of several friends, succeeded in removing a calculus, principally composed of lithic acid, of an uncommon shape, weighing nearly two ounces and three drachms. The smaller end, being the only part that presented, could be easily felt by the forefinger, and was several times readily and firmly seized by the ordinary forceps; but the larger end, from being either encysted or encircled by a fold of the bladder, was so firmly grasped that, from its neck-like contraction, the greatest difficulty was experienced in removing the stone, and which I think could never have been accomplished had I not succeeded in insinuating the blades of a smaller pair of forceps between the cyst and beyond the broad part; for immediately an attempt was made to draw it through the wound, from its peculiar shape and position it slipped from the blades of the instrument. The force required for its removal was very great.



The patient was comfortably placed in bed; and, although there was considerable contusion and laceration of the neck of the bladder, he made a good recovery, the wound healing kindly, and the urine passing wholly through the urethra on the thirty-ninth day. No unfavorable symptoms occured during his convalescence, except three pretty severe attacks of rigors—one on the fourth, another on the eighth, and a third on the twenty-first day after the operation.

Dover, March, 1868.

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### ON

## A CASE OF RUPTURED IRIS.

### By Thomas Joyce, M.D. Edin.

Lucy A——, aged three years and a half, was brought to me on the evening of the 24th of December, her father stating she had been struck on the eye by a spent shot an hour before. I found a small contused wound in the centre and at the extreme edge of the upper lid, the whole lid tumid, and the conjunctiva much injected. A cold compress was applied, and the child sent home.

On examining the eye next day, I noticed a marked flattening of the upper segment of the pupil; and, on elevating the lid, a rent of the iris from its attachment came into view. The rent was about a line and a half in length; the edge of the torn iris sharply defined and jagged; contraction of the iris widened the aperture; extreme dilatation rendered it invisible. The cornea was uninjured. A small coagulum of blood lay in the anterior chamber, and slight conjunctivitis existed.

The treatment consisted in keeping a cold compress over the eye, obtaining constant dilatation of the iris by the atropine solution, so that the torn edges might approximate each other, and a calomel powder at bedtime. At the end of a week the coagulum had become quite absorbed, the conjunctiva was clear, the pupil still remained flattened, and the rent in the iris was unaltered. Vision was in no way interfered with.

**The Parsonage, Rolvenden, Feb. 1868.**

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## UNUSUAL QUANTITY OF FLUID IN ASCITES.

### By Chas. Webb Iliffe, M.R.C.S., L.R.C.P.

The following case of paracentesis abdominis may be interesting to the profession from the large quantity of fluid contained in the peritoneal sac:—

Mrs. G——, aged fifty-one, widow, mother of six children, consulted me in October last respecting her case—ascites. Her gait and general figure on entering the room resembled much that of the man who carries the big drum in a brass band; the protuberance in front was something enormous. About six years ago she first perceived some enlargement of the abdomen, which has gradually increased in size. Until within the last six months she has experienced little inconvenience or constitutional disturbance, but has latterly complained of dyspnœa and inability to retain food on the stomach, and is evidently suffering from emaciation.

After a careful examination, and finding the case one of pure ascites, I determined to operate, and did so on Nov. 5th, when I drew off the immense quantity of forty imperial quarts of fluid. There was no syncope during the operation; she recovered with scarcely a bad symptom, and ten days afterwards was able to walk about, being steadied by assistants. Of course all the dyspnœa, sickness, etc., has disappeared, I may here mention that after the evacuation of the fluid the ensiform cartilage and the cartilages of the false ribs were found to be forced outwards and upwards, the ensiform cartilage presenting a peculiar hooked appearance.

I have ordered an apparatus to be made something similar to swimmer's drawers, extending as high as the fourth rib, to be padded, and to lace up in front, that the loose integuments may be supported and gentle pressure maintained.

**Wednesbury, Staffordshire, Feb. 1868.**

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**The Suez Hospital, about which so much has been said, is not yet ready for the reception of the sick troops from India. From one correspondent we hear that the work is quite at a standstill for want of materials. The most prelimary sanitary measures have not yet been undertaken, and the water is not laid on. In so backward a state is the building, that it is doubtful whether it will be fit for occupation till next season, and this notwithstanding the new line of transports have been running for many months. Three tents have, however, been prepared in the desert.**

# A Mirror
# OF THE PRACTICE OF
# MEDICINE AND SURGERY
# IN THE
# HOSPITALS OF LONDON.

> **Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Prooemium.**

## GUY'S HOSPITAL.

### CASES OF LACERATION OF THE URETHRA.

### (Under the care of Mr. Birkett.)

The following cases are good illustrations of a most serious injury affecting the excretory duct of the urinary and genital organs of the male, their treatment, and results. They show how the deep-seated structures are torn and lacerated without the integument of the perineum being wounded, and that the extravasated blood poured out from the ruptured vessels forms a plug to prevent the escape of urine which would otherwise occur when the urethra is completely divided. The surgeon is generally able to pass a flexible catheter into the bladder by keeping its point gently pressed against the roof of the urethra, except in those cases (as Case 3) in which the ends of the urethra are widely apart. But it becomes absolutely necessary to remove this instrument after a few days, and then it sometimes happens that another cannot be passed, or, as the result of a little urine oozing through the rent in the urethra mixing with the effused blood, inflammation and suppuration are excited. Then the duty of the surgeon is plain. An incision must be made immediately along the raphé of the perineum to allow a free escape for the urine, blood, and pus. Cases 1, 2, and 3 afford a marked contrast with Case 4. The first occurring in youth, the two others in early adult life, the constitutional health of the patients being perfect, the reparative powers were scarcely interfered with, except in the third case. That man recovered from a severe attack of pneumonia. The last case is an example of the condition of too many of the patients admitted into the metropolitan hospitals. Broken down in constitution by toil, intemperance, and exposure, they are ill-disposed to resist the effects of loss of blood, the constitutional excitement resulting from the injury, and the total change of habits necessitated by the circumstances in which they are thrown. Such patients commonly have some organic visceral disease, as this man had when he received the injury. The results of these injuries are sometimes very unsatisfactory; for although the life of the patient may be saved, a permanent fistula remains in the perineum in consequence of the difficulty of uniting the widely separated ends of the urethra at first.

Case 1.—A healthy boy, twelve years old, fell across the leg of a stool the day before admission into the hospital. The integuments of the perineum were not lacerated. He was unable to pass any urine, but a surgeon introduced a catheter, and drew it off mixed with blood. About mid-day following that when he was injured, he was brought in. The scrotum and perineum were tense and black from effusion of blood, and ecchymosis extended on to the pubes. The urine had been retained since the previous night. The house-surgeon, Mr. R. Eager, passed a flexible catheter easily, and fixed it in the bladder. The case progressed favorably for eight days, when it became necessary to remove the catheter. It was not possible to introduce another, and as signs of extravasation of urine appeared next day, Mr. Birkett incised the perineum along the raphé. After this operation the boy had not a bad symptom; the stream of urine, which all passed through the wound at first, gradually diminished, until all of it passed along the natural channel, and he left the hospital forty-three days after the receipt of the injury, the wound quite healed, and making a full stream of urine.

Case 2.—A robust, hearty man, thirty-two years old, was admitted about twenty-four hours after falling on to the edge of a cask, the head of which broke in whilst he was standing upon it. One leg went outside the cask, one inside, his perineum coming in contact with the sharp edge of the stave. He passed blood from the urethra a quarter of an hour after the accident, and continued to do so for a short time. Soon after admission, Mr. Birkett introduced, very slowly, a flexible catheter, by keeping its point well against the roof of the canal, and drew off clear, bloodless urine. There was extreme ecchymosis of the scrotum and perineum, on the right side sharply limited to the femoro-perineal fold; on the left it extended a little on to the thigh, with an irregular outline. This man was the very type of a vigorous, healthy individual, in the enjoyment of actice reparative powers. The catheter was fixed in the bladder. On the fourth day from the injury, the ecchymosis had considerably diminished, the urine passed freely through the catheter, and there was not any constitutional disturbance. On the seventh day the catheter was changed. On the eleventh day there was suppuration in the perineum, and Mr. Birkett made an incision along the raphé. The catheter was removed the next day, as all the urine passed through the wound. On the fourteenth day the wound looked healthy, and was healing. On the eighteenth day after the injury nearly all the urine passed through the urethra; in a few days the perineal wound healed perfectly, and he left the hospital fifty-two days after receiving the injury, passing urine in a good stream, through the natural channel.

Case 3.—A healthy laboring man, thirty-eight years old, fell from a height of nine feet, astride the narrow edge of a plank of wood, and struck the perineal region with unbroken force. He was admitted twenty-two hours after the injury, no surgical treatment having been asked for. The scrotum and perineum were distended with blood. A catheter could not be passed. The bladder was distended, distinctly felt above the pubes. There was not even a scratch on the perineum. Mr. Birkett made an incision along the raphé of the perineum, and, removing a large quantity of coagula, found the ends of the urethra widely separated. The bulb of the corpus spongiosum, together with the anterior division of the urethra for half an inch, were torn away from the corpus cavernosum. The right crus penis was laid bare, as if dissected, and was slightly separated from the ramus ischii. There was an extensive laceration of the connective tissue between the rectum and prostate gland and deep perineal fascia. A flexible catheter was introduced along the urethra in the hope of being enabled to connect its divided tissues; but this operation was impracticable. The urine was allowed to pass through the wound. He progressed favorably until, fourteen days after the injury, he was attacked with inflammation of the left lung and inflammation in the pubic region and groins. He became extremely prostrate, although during his illness the wound in the perineum always looked healthy and slowly healed. Before the wound had dimished many attempts were made to introduce a catheter, but without success. He left the hospital, passing urine through a fistulous opening in the perineum, ninety-two days after the injury.

Case 4.—An unhealthy-looking journeyman butcher, thirty-nine years old, the day before admission fell, whilst walking, and his right leg slipped through a coal-shoot, the cover which tilted edgewise. His perineal region came violently in contact with the cover or the stone edge of the hole. When admitted, sixteen hours after the injury, he had passed only blood from the urethra. The urinary bladder was distended and reached upwards to the umbilicus. Blood was extravasated in the perineum, scrotum, and penis. By tracking the roof of the urethra with a silver catheter the bladder was readily reached that viscus emptied, and the instrument fixed therein. On the fourth day after the injury a flexible catheter was introduced. On the seventh day active hæmorrhage occurred, and on the next, finding the bladder distended, and the perineum tense with effused blood, as well as probably urine, Mr. Birkett incised it along the raphé. The extent of the injury was now for the first time visible. Coagula filled the space, and extended into the pelvis between the rectum and bladder. Arterial hæmorrhage, not profuse but continued, came from branches of the inferior hæmorrhoidal arteries, which was checked, but not arrested, by pressure on the abdominal aorta whilst the man was under the influence of chloroform. A ligature was applied to the vessels, and tincture of the sesquichloride of iron applied to the part. The effects of the loss of blood were marked the next day, but he rallied, and on the fourteenth day after the injury the force of the pulse was improved, he had gained strength, the wound looked healthy, and he seemed in a fair way to recover. On the nineteenth day the penis became inflamed, the urine was ammoniacal, and he was suffering great pain about the region generally. On the twenty-first day all the symptoms of pyæmia, both local and constitutional, were clearly marked, and on the twenty-fifth day after the injury he died.

*Necropsy.*—There was sloughing of the perineal wound, the urethra, penis, and scrotum. Both pleuræ were covered with yellow lymph. The right lung contained pyæmic abscesses in various stages, and the bronchia and trachea contained pus; the last was coated with an adherent layer. The internal iliac arteries of the right side were suppurating, soft, and a layer of pus lined their inner membrane. The pelvic veins were white and thick from purulent inflammation, and some had pus-like fluid in them. The liver was large, yellow, and soft. The spleen large and soft. The right kidney had a calculus, with its point in the ureter, the body in its pelvis, the lining membrane of which was rough from calculous deposit thereon. The pelvis and ureter were much distended. There was a small round abscess at the lower end of this kidney. Left kidney normal. Suppuration around the prostate extending to the bladder. The urethra had been torn across just above the bulb of the corpus spongiosum.

### A CASE OF ABDOMINAL ANEURISM, PROBABLY OF THE CÆLIAC AXIS.

(Under the care of Dr. **Wilks.**)

In connexion with the preceding case we may refer briefly to one now in the men's clinical ward at Guy's Hospital, which we have seen several times of late. The patient is a ship's painter, who fell forty-six feet on the small of his back, three years and a half ago. He was laid up for six weeks, and then remained quite well till nine months ago, except that he had several attacks of colic. He then suffered great pain in the loins, aggravated at night, extending sometimes to hips and down left leg. These symptoms continued up to the time of his admission into the clinical ward on February 3rd. It was only three weeks before this that he had noticed pulsation in the belly.

The patient is sallow and thin. He complains of pain in the lower dorsal and lumbar regions on both sides, which is not increased by pressing the spinous processes. No bruit is heard in the back. There is a pulsating tumour in the left hypochondrium and epigastrum, oval in form, measuring about two inches transversely, and two and a half longitudinally. At each pulsation it expands in all directions, and synchronously a bruit is heard which is sometimes almost musical in character.

On February 6th, he began taking two grains of acetate of lead every six hours, which was continued till the 25th, when he had much pain in belly and chest, fetor of breath, and constipation. After a fortnight's intermission the lead was again resumed, and he was taking it when we last saw him, on March 21st. He has had all along a very distinct blue line on lower gum.

In this case it was impossible to apply pressure on account of the position of the tumour. Dr. Wilks therefore prescribed lead, influenced, he said, in some measure by the success which appeared to have followed that treatment in a case reported by Dr. Daly in the London Hospital Reports, vol. iii. He confessed, however, the difficulty of explaining in what way improvement is produced by the use of this drug. Lead has no influence in coagulating the blood. It acts probably through the nerves, constringing the smaller arteries. "Is it possible, therefore," Dr. Wilks suggested, "that the *modus operandi* may really resemble that which Brasdor had in view when propounding his principal, and that deposit of fibrin takes place in the aneurismal sac, because the circulation is diminished by reason of the contracted state of vessels on the distal side of the tumour? The suggestion is a novel one, and, it seems to us, well worthy of careful consideration.

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## COLDSTREAM GUARDS HOSPITAL.

### A CASE OF TUBULAR ANEURISM OF THE ABDOMINAL AORTA.

(Under the care of Surgeon-Major **Wyatt.**)

An attempt was made in the following case to encourage the deposition of fibrin from the blood by means which lessened the circulation through the aneurism. Lister's abdominal tourniquet, which has been frequently employed most effectively in surgical operations upon the lower extremities, and notably in amputation at the hip-joint, was used to command the aorta. The distress, however, rendered it necessary to discontinue its use after it had been employed for some time.

Private P. S——, aged twenty, was sent to London from the recruit establishment at Warly on July 21st, 1867, suspected to be affected with abdominal aneurism. He complained of a continued fixed pain in the loins, with pulsation, increased on exertion, at and below the umbilicus. These symptoms date from an accident sustained eighteen months previously, before enlistment, which caused a violent strain of the back, and for which he underwent treatment in the Newcastle Infirmary.

He is somewhat emaciated, with an anxious expression of countenance. There is marked increase of pulsation at the region indicated, with a loud whizzing bruit, some portion of which it is considered may be due to the pressure of the stethoscope, especially as no tumour can be detected, although, from the thinness of the parietes, the aorta can be felt most distinctly, and appears to roll under the finger with a very rigid sensation. The first sound of the heart is sensibly prolonged; functions appear generally to be well performed; pulse 88, soft; appetite capricious, and he complains of distension after meals. To have spoon diet, with mutton broth and to take bismuth and citrate of ammonia with prussic acid, and infusion of gentian, twice a day.

Sept. 13th.—The man has evidently become more emaciated, and the aorta can be traced distinctly through its abdominal course. It appears equally dilated to about one-fourth in excess of its natural calibre, and unusually rigid.

16th.—Complains this morning of feeling great nausea, especially after eating, and of a sensation of dragging at the stomach; respiration hurried; and the patient has an anxious expression. These symptoms subsided after a few days' rest in bed.

Oct. 7th.—Complains that the heart beats with greater force than usual; but no change can be detected. To take ten minims of tincture of digitalis with each dose of the steel medicine.

Nov. 7th.—Although no pouch or irregular dilatation can be detected in the aorta, which for a ditance of about two inches appears uniformly hard, bulging, and very rigid, yet, as the throbbing appears to increase in intensity, it was considered desirable to try the effect of diminishing the flow of blood through the arterial tube by gradual pressure applied above the umbilicus by Lister's screw tourniquet, not with the idea of expecting any chance of an obliteration being produced, but to control the constant impetus from time to time of the force of the circulation against the walls of the diseased part of the artery. The pad of the tourniquet was applied continuously for twenty minutes between the umbilicus and lower end of the ensiform cartilage. The pulse prior to the application, was 80, small and compressible. During its continuance it rose to 88; and subsequent to the removal of the instrument it was reduced to 75. The man complained of a hazy feeling about the head, with clammy surface, and "a curious feeling" about the feet and legs. He also felt great fulness of the chest, chiefly concentrated at the heart. To take half a drachm of tincture of hyoscyamus and an ounce of camphor mixture directly, and to repeat it in the morning.

23rd.—Passed a restless night; no diminution of the impulse perceptible; bowels confined. Half an ounce of castor oil was ordered. Pressure was again applied for twenty minutes, with the effect of much retarding, but not altogether checking, the flow of blood through the iliacs.

24.—The impulse of the aorta before the application of the tourniquet was certainly diminished below the umbilicus; pulse 80. Pressure was applied for twenty minutes, during which the flow of blood was quite arrested in the femoral ; the pain about the cardiac region was much complained of.

25th.—Bowels still inclined to constipation, probably from the effects of the iron. Pressure again applied for twenty minutes, with complete arrest of the circulation during the latter part of the time. Repeat the tincture of hyoscyamus and camphor; to take two teaspoonfuls of castor oil every morning.

26th.—Pressure was again applied for three-quarters of an hour; about six hours after which, when taking a deep inspiration, he experienced an acute twisting pain about the umbilicus, extending up to the heart. He was seen shortly after, and found in a state of collapse, with fluttering pulse, and cold clammy surface; extremities also cold. To take half an ounce of brandy in hot water every hour, and apply hot bottles to the feet.

27th,—Passed a restless night, but this morning the impulse is considerably diminished, and the bruit quite subsided. Pulse 66, soft and compressible; bowels open; has a disinclination for solid food, and dreads the renewed application of the tourniquet, which was not attempted to-day. To have spoon diet and beef-tea.

28th.—Pain less complained of, and instrument was again applied with less intensity.

30th.—The pressure has not been well tolerated during the past two days.

Dec. 3rd.—It was now decided to discontinue the application of the tourniquet as the pain complained of afterwards was so great, and the calibre of the artery was perceptibly larger. It was difficult to say whether this might be due to any fresh depositions of an atheromatous or other material in the middle coat, or to a gradual process of thinning, whereby at the diseased part the tunics were less able to resist the propulsive impulse of the current of blood. It seemed, however, more prudent to desist from any further application of the tourniquet, and to trust to the general tonic and sedative system of treatment. His state varied but little from day to day until Jan. 7th, when he was invalided as unfit for further service.

One interesting circumstance was connected with this case; there was a distinctly appreciable difference both in the impulse and bruit between the two superficial femoral arteries, which the sphygmograph clearly corroborated. This Mr. Wyatt presumed might be taken to demonstrate that the disease, of whatever character it might be, implicated the bifurcation of the aorta extending more into one common iliac than the other.

## KING'S COLLEGE HOSPITAL.

### A CASE OF ULCERATED STUMP AFTER AMPUTATION.

(Under the care of Sir Wm. Fergusson.)

Among the operations which we witnessed at King's College Hospital on Saturday last (March 7th) was one which Sir William Fergusson followed up by some interesting remarks that deserve to be recorded. The patient was an elderly man whose foot was amputated four years since, on account, it is believed, of frost-bite. The amputation was either at, or immediately above, the ankle-joint. If Syme's operation was the one performed, the flap from the sole must have sloughed away, for the stump presented at its extremity a large ulcerated surface. The limb had been useless to the patient ever since the operation. He had never been able to bear the pressure of an artificial extremity.

Sir William made a couple of flaps, and removed about two inches of the bones. He remarked that of late it seemed to him that such instances of imperfect stump had been becoming more common than they were, say, fifteen years ago. In the days of the circular amputations they were very common; but when it became usual to amputate by flaps one very rarely, in comparison, met with these inconvenient results. In the course of the past year he had seen seven or eight of such cases at the hospital, one of them being a case of his own. The circumstance seemed to him to indicate an important point of inquiry as to the ultimate results of those operations which the late Mr. Teale of Leeds and Mr. Carden of Worcester had especially advocated of late years, and of which he (Sir William) had had numerous cases: he referred to the formation of skin flaps. Formerly it was thought that we could scarcely leave too much or too solid tissue for the making of a flap. The idea was to leave a soft cushion in which to envelope the end of the bone. To be sure he did remember once seeing a case in which this principle was clearly overdone. The surgeon, amputating a leg a few inches below the knee, made his posterior flap of the whole calf down to the tendo Achillis. The result was, that so impracticable and unwieldy was this that a second operation had to be performed for the trimming of the stump. The modern idea was to have the flaps of skin and tendon only. There could be no question, he thought, that great immediate advantage was thus gained. We thereby avoid, to a large extent, those extensive collections of matter running up among the muscles which were formerly very apt to occur. There was little or nothing left in which inflammatory action could be set up, and so a very satisfactory result was at once obtained. We had yet, however, to see—and he (Sir William) did not say that it would be found to be so—whether with these skin flaps there was a greater danger of such a result as that which had just been observed than formerly obtained. In the present instance he thought the original amputation had been either what was called Syme's, or just above the ankle-joint. If the latter, he thought the position chosen was not a good one. If for any reason Syme's had been impracticable, he thought the surgeon would have done better to have gone some four or six inches up the leg. He would thus get good skin flaps ample in extent, and would yet leave the limb of convenient length for the adaptation of mechanical support. It might be asked, then, why *he* did not, on the present occasion, amputate higher. His reason was, that the man was in an unhealthy state, and he preferred keeping as nearly as possible to the existing injury. He was not in a very good state for any operation (having endured great misery through the state of the stump); and, on the whole, the operation performed was that attended by the least risk.

## LONDON HOSPITAL.

### A CASE OF PARALYSIS OF THE THIRD, FIFTH, SIXTH, AND SEVENTH CRANIAL NERVES.

(Under the care of Dr. Ramskill.)

We observed this case when accompanying Dr. Ramskill in his round. It is especially interesting for the two following reasons: 1st. Although the lesion is probably syphilitic in origin, there is a history of an ulcer on the penis, followed by suppurating bubo, a condition which is generally accepted as not liable to be followed by constitutional syphilis. 2ndly. It is exceedingly rare to find no hemiplegia of the extremities where the extent of disease, is so large as the involution of so many cranial nerves shows it to be in this case. This man, according to his own account, never had any sore-throat or eruption. Dr. Ramskill remarked to us that this was in accordance with his experience. He had found that nervous affections of syphilitic origin were not ordinarily preceded by sore-throat or skin eruption. Mr. Mackenzie, the resident medical officer, rendered us much obliging assistance in procuring details of this man's case.

Robert S——, aged twenty-seven, stoker, anæmic in aspect, admitted on Februrary 11th. His face is drawn to the right; tongue protruded to the left. The conjunctiva of the left eye is red and granular, and the outer edge of the cornea is ulcerated; the conjunctiva can be touched and even rubbed without his feeling it. The pupil is greatly contracted. There is very slight drooping of the left eyelid. Sensibility of the left side of face generally impaired, and especially below the angle of the mouth. There is internal strabismus of the left eye. He is absolutely deaf on the left side. There is nothing whatever wrong with his limbs. Food accumulates on the left side of his mouth. No difficulty in speech or swallowing. We applied quinine and sugar to the tongue, and thereby ascertained that taste was certainly imperfect on the left side. Six years ago he had chancre, followed by suppurating bubo. He has never had sore-throat or eruption. He was well till four months ago, when he had darting pain in the left eye and temple, and in the course of two months he had lost the use of left side of his face, and his hearing on that side left him suddenly. He discovered his condition by finding that he could not close the eye. His account of the mode of accession of symptoms is so confused as not to be reliable; but it would seem that there was no long interval between the occurrence of the various forms of local palsy we have described.

The treatment has consisted in iodide of potassium, in doses at first of ten grains three times a day, commencing Feb. 11th, and increased on the 19th (a week afterwards) to fifteen grains, which he took for a week and then discontinued for a week. On March 6th he was ordered twenty grains three times a day, which was discontinued on the 18th. Dr. Ramskill is of opinion that the effects of a certain dose of iodide of potassium will be manifested in a few days, or not at all. He thinks it better, therefore, if no result follows a brief administration, to allow a short interval and then increase the dose.

Hitherto no improvement has taken place in this man's condition, and it is feared that the ulceration observed on the cornea will advance, and the globe be lost by sloughing, and require removal.

## ST. MARY'S HOSPITAL.

### FRACTURE OF PELVIS, TIBIÆ AND FIBULÆ; LACERATION OF BLADDER; DOUBLE AMPUTATION; DEATH.

(Under the care of Mr. Norton.)

On Feb. 27th Mr. Norton amputated both lower extremities at the knee-joint in a case of double compound comminuted fracture of tibia and fibula from a railway accident. The man survived the shock of the operation and seemed in good spirits, and the pulse remained about 112 throughout the day. Towards evening, as the patient was unable to void his urine and complained of much pain in the bladder, a catheter was passed by Mr. Marshall, the house-surgeon, and a quantity of blood was found to be contained in the urine, but not mixed with it. Pain was produced, of a severe character, by jerking the pelvic bones; and it was therefore presumed that a pelvic fracture existed, with laceration of the bladder. The following morning the abdomen was tympanitic and the abdominal pain more general, and leeches were therefore applied.

The patient died after thirty-six hours, and at the post-mortem the flaps looked healthy and were doing well, but it was found that both innominate bones were dislocated from the sacrum, and also from each other at the symphysis pubis; the anterior wall of the bladder was perforated by the bone in two places, and the transverse colon was torn from its position and much inflamed. Peritonitis was becoming general, though not yet severe.

The patient had been struck by an engine on the side of the pelvis and abdomen, and, being twisted round, was thrown with both legs upon the line. With such severe complications, it is remarkable that the shock was not sufficient to point to an internal injury, and, as already mentioned, was not apparently increased at the time by the double amputation.

# Provincial Hospital Reports.

## HOSPITAL FOR SICK CHILDREN, NEWCASTLE-ON-TYNE.

### HYDROCEPHALUS FROM A CYST IN THE CEREBELLUM PRESSING ON THE VEINS OF GALEN, AND CAUSING CONGESTION OF THE CHOROID PLEXUSES WITH DROPSY OF THE VENTRICLES: REOPENING OF THE FONTANELLES AND SUTURES BY FORCIBLE SEPARATION OF THE CRANIAL BONES.

(Under the care of Dr. MURRAY.)

IT was pointed out long ago by Dr. Whytt, that when a tumour presses upon the veins of Galen, hydrocephalus, or dropsy within the cranial cavity is produced by the same mechanism as ascites in cases of scirrhus of the liver, &c.* The following is a very interesting example of hydrocephalus from this cause, for the notes of which we are indebted to Mr. John Hope. It is not common for separation of the bones to occur under these circumstances to the extent which happened in this case.

G. S——, aged seven years, was brought to the hospital about two years ago, suffering from occasional epileptiform seizures, followed by vomiting and great prostration of strength. The boy had a lively, intelligent appearance, was well-nourished, and free from all constitutional ailments. He complained of pain over the occiput, and a feeling of dizziness when walking. The head was at this time of a good form, and the features were quite regular. There was no affection of any of the special senses, and the motor power of the extremities was perfect. In the course of a few months the fits began to increase in frequency and severity, and were always accompanied by vomiting. His expression now became slightly vacant, and a slight tottering was observed in his gait. About this time he became an in-patient of the hospital, and was seen by the nurse to fall off his bed from time to time. Whenever the falling was frequent his gait became more markedly affected, and a tendency to shuffle round deviated his course in walking from the straight line in a curvilinear direction. The symptoms continued as above for two months. He was then sent home and returned to the hospital a year ago. By this time his gait was extremely irregular, and he often entirely failed to walk at all. The vomiting and fits were not so frequent, but occipital pain had increased with great severity. He would sometimes lie in a state of unconsciousness for some hours, the face being blanched and without expression; at other times severe pain over the right temporal region was added to his sufferings. When spoken to he always answered with a hearty smile, and he seemed sometimes unable to control a strong tendency to laugh. The sight and hearing were still perfect. During the last nine months of his life some remarkable changes took place. First, the enlargement of the head, then blindness, also, lastly, the full development of hydrocephalus. While in the hospital he gradually lost flesh and strength, and, as the case presented no prospect of recovery, he was again sent home, where Mr. Hope watched him carefully for nine months. During this period the poor boy became completely blind, and lost all power over his lower limbs and the sphincters. But the most remarkable change occurred in the state of the cranial bones, although most perfect union of all the sutures had taken place previous to the commencement of his illness. The head began to enlarge laterally in the parietal and occipital regions. By slow degrees the temporal and parietal bones in front, and the occipital and parietal bones behind, were forced asunder, while the parietal bones were separated from each all along the middle line of the dome of the skull. In fact, a very open state of the fontanelles, with free separation of the parietal bones, was fully established. Anteriorly, the head remained quite small, so as to give it a contracted appearance when compared with the posterior enlargement. After the reopening of the skull, the head became much less painful in front. A large fluctuating swelling soon began to project between the separated bones, and the bones themselves became quite movable on being firmly pressed. As the case was evidently hopeless unless the cranial fluid could be got rid of, tapping was suggested as an extreme measure. To this the parents consented, and on two occasions half a pint of fluid was drawn off, but without relief. To the last the boy retained his intellectual faculties, and enjoyed good spirits always greeting a friendly voice by a happy smile. On June 19th, 1867, he died. During the latter part of his illness, the appetite was voracious. Frequent attacks of vomiting occurred before death, and these were always preceded by pain in the head, and followed by unconsciousness for a few hours. Sleep often left him for a few days; generally, however, he slept well.

*Post-mortem examination.*—Before opening the body, Dr. Murray expressed the opinion that this was a case of cyst in the cerebellum pressing on the veins of Galen, and causing dropsy of the ventricles. This proved to be true. On opening the head, the brain was found enormously distended, from an accumulation of fluid in the lateral ventricles. On opening the ventricles, the septum lucidum was found to be destroyed, the fornix enlarged, and the choroid plexuses turgid with blood. The vessels of these plexuses formed a very large vascular fringe, three times its natural size. This became more marked as it approached the commencement of the veins of Galen. The floor of the third ventricle was also distended, and pressed seriously on the optic tract and commissure. On removing the cerebrum, the cerebellum was found enlarged on its upper surface and towards the left side of the middle lobe. This enlargement fluctuated, and the fluid within was evidently surrounded by a firm wall of brain-substance. On cutting into the cerebellum, a cyst containing an ounce of fluid was found, occupying its left and central lobe. The elevated part of the cyst pressed considerably on the tentorium, so as to encroach upon the space usually occupied by the under-surface of the posterior lobe of the cerebrum. The effect of pressure on this situation was to obstruct the flow of blood in the veins of Galen, so as to produce serious congestion of those parts of the brain from which they derive their current of blood. As a result of this, serous effusion from the choroid plexuses and dropsy of the ventricle had ensued.

Dr. Murray remarks that in the case-books of University College Hospital will be found the history of a case somewhat similar to this. It occurred in the practice of Drs. Jenner and Parkes, and presented, amongst other symptoms, occasional failure of the power of standing, loss of sexual desire, complete blindness, partial loss of hearing, taste, and smell, with pain in the head. On post-mortem examination, a cyst was found in the cerebellum pressing on the veins of Galen, dropsy of the third ventricle, and pressure by the distended ventricle upon various important nerves. In both cases the cyst was unilocular, without any traces of echinococci, and the cyst wall was closely adherent to the condensed brain-substance around it. The point of difference in these cases was this, that in the University College case there was but slight distension of the lateral ventricles, and extreme distension of the third ventricle; while in the present instance the lateral ventricles were the most expanded. The explanation of this difference is to be found in the ages of the patients. Distension of the third ventricle occurred in a middle-aged woman, in whom the union of the cranial bones was complete enough to resist extreme enlargement of the lateral ventricles; while in the boy, the distension of the lateral ventricles was permitted by the yielding of the recently closed cranial sutures.

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* See article "Chronic Hydrocephalus," by Dr. Ramskill. Reynolds's System of Medicine. vol. ii.

## HOSPITAL OUT-PATIENT PRACTICE.

## MORNING SICKNESS OF PREGNANCY.

This affection, which is so common as to be usually almost disregarded, becomes occasionally a source of great discomfort or even danger to the pregnant woman. The phenômenon, sometimes termed "sympathetic," would frequently appear to depend upon reflex secretion by the stomach of a large quantity of unduly acid gastric juice. The source of centripetal irritation being one which, in the ordinary course of things, we cannot remove or influence, it might naturally be expected that most benefit would be derivable from remedies which diminish the reflex faculty of the central nervous system: and it will be noticed that, in the experience of the authorities whom we quote, sedative remedies are those which apparently met with most approval. Of all drugs, belladonna probably possesses the most power in diminishing reflex excitability. It might perhaps be well to try, in very troublesome cases, the subcutaneous injection of atropine in exceedingly minute doses.

### ST. BARTHOLOMEW'S HOSPITAL.

Dr. Greenhalgh states that vomiting during pregnancy may arise from a great variety of causes but there is one form which compartively few women escape, characterised by its early morning reccurrence; the appetite being unimpaired; attended with little or no pain; in which glairy mucus, sometimes tinged with bile, is ejected, after much retching, and in which there are no evidences of disorder of the digestive functions. This form occurs more frequently and severely in those of a nervous or hysterical temperament; in those who have suffered from dysmenorrhœa and other uterine ailments; in those in whom the mammary sympathies are well marked; in primiparæ; in twin gestation; and more frequently amongst the rich than the poor, owing probably to the more highly attuned state of the nervous system, and less active occupation of mind in the the former. It usually commences about the sixth week, and terminates before the commencement of the fourth month, (sympathetic); and it may again recur or commence near the end of pregnancy, owing to pressure of the uterus against the stomach (mechanical), It rarely occasions much inconvenience, but in some cases it is extremely severe, and, in exceptional cases, threatens and has led to destruction of life; in which latter cases nearly and even the whole of the ingesta are vomited, giving rise to great emaciation, debility, and eventually to exhaustion. In the great majority of cases the opinion of the physician is not sought, but where the symptom is sufficiently severe and distressing to demand treatment, it is of the utmost importance that a correct diagnosis as to its cause be made. Much of the ill success is due to the empirical way in which this symptom is treated, and many failures are doubtless attributable to neglect on the part of the patient, who under the impression that it is a necessary part of the pregnant state, and must consequently be borne, does not apply for relief until the stomach has become so irritable as to resist the best assorted means. In four very severe cases, threatening life, which have come under Dr. Greenhalgh's care, two were due to highly congestive and irritable conditions of the uterus, one to retroversion, and one to dropsy of the amnion and twin gestation.

The plan of treatment which Dr. Greenhalgh has found most successful consists of rest in the semi-recumbent position, especially after meals, which should consist of bland, nutritious, and unstimulating food, frequently administered, and in small quantities. The patient should take a little coffee about a quarter of an hour before rising, and should guard against long fasts. Great attention must be paid to the state of the bowels. In some cases a slight bandage round the lower ribs, and under this a strong sedative application over the epigastrium, appear to have done good. Effervescents, with hydrocyanic acid, belladonna, or nux vomica, ice, and in some cases lemon-juice, have proved useful. Bismuth and charcoal, where there have been large secretions of acrid mucus, accompanied with flatulent eructations, have appeared serviceable. But of all remedies Dr. Greenhalgh places most reliance upon the introduction into the vagina of morphia suppositories, more especially in severe cases, and where an irritable condition, with or without abrasion of the cervix uteri, is found to exist. In such cases he believes little or no reliance can be placed upon remedies taken by the mouth, which he has found rather to aggravate than relieve the vomiting. In the four cases especially alluded to, the first two were immediately relieved, and ultimately cured, by the suppositories; in the third the sickness abated shortly after the replacement of the uterus; whilst in the fourth, artificial premature labor at seven and a half months was successfully had recourse to. Dr. Greenhalgh recommends from one and a half to two grains of morphia as the usual strength of the suppository; but in cases where there is abrasion, with little secretion, care should be taken against an overdose. Dr. Greenhalgh states that he has seen some remarkable cases illustrating the influence of the mind on the vomiting of pregnancy. A lady, reduced to the most alarming state of prostration by this symptom, was suddenly informed that her favorite child was dangerously ill with scarlatina. She at once, and against the most urgent remonstrances, left her bed; the sickness ceased, and she tended her child unremittingly night and day for many days without even one recurrence of the vomiting. Some years ago he attended a milliner who suffered most severely from vomiting. She was pregnant, and for the first time, and with twins. No matter how severely she might be suffering, if summoned to see a customer, the vomiting immediately ceased, and did not recur on that day.

### UNIVERSITY COLLEGE HOSPITAL.

The "morning sickness" of pregnancy, when limited to the morning or early part of the day, rarely calls for energetic or complicated medication. Under such circumstances Dr. Graily Hewitt generally finds benefit derivable from giving the patient some nourishing article of diet, such as a teacupful of beef-tea, a small sandwich of meat a cup of milk, &c., before raising the head from the pillow. The change of posture from the recumbent to the upright position appears to excite the attack when the stomach is empty, but not so much so when the attention of the organ is, so to speak, otherwise occupied. The patient should remain a few minutes or longer in bed after this early meal before attempting to rise. That the sickness will occur in spite of this in some cases is undeniable; but in very many instances Dr. Graily Hewitt finds notable relief given by the simple treatment just mentioned.

### KING'S COLLEGE HOSPITAL.

Dr. Playfair is not in the habit of treating cases of "morning sickness" much, unless it is unusually severe, beyond carefully regulating the diet, and removing any obvious source of irritation to be met with in the primæ viæ themselves. He is of opinion that there is much truth in the old belief, that pregnancies without morning sickness are not, as a rule, favorable. He has so frequently noticed that when sickness is entirely absent other and more distressing reflex phenomena, such as syncope, exist to an unusual degree, that he is disposed to look upon the entire absence of nausea as unfavorable. When morning sickness is excessive he has frequently verified the opinion of Dr. Clay and others, that there is some morbid condition of the uterus itself, and has found local treatment, such as the occasional application of leeches to the vulva, or of iodine paint to erosions of the cervix uteri, to be of great service. With regard to actual medicines he is disposed to place most reliance on the oxalate of cerium, in doses of two grains three times a day. Next to this, effervescing draughts, with hydrocyanic acid, ice for suction *ad libitum*, and the subcutaneous injection of morphia, seem to have answered best. The pyroxilic spirit, strongly recommendod in a late volume of the "Obstetrical Transactions," has not been found to answer so well as was expected.

Dr. Playfair has not met with any of those aggravated cases in which the patient has been reduced to death's door from the exhaustion of constant vomiting. But in the event of the induction of labour being considered necessary for the safety of the patient, he would urge the performance of the operation before things had gone so far as to render recovery almost hopeless. He believes that failure of the operation in such instances may generally be traced to excessive delay.

### BRITISH LYING-IN HOSPITAL.

The vomiting of pregnancy, purely resulting from sympathetic irritation, and not due to ulceration or some morbid condition of the uterus during gestation, has been treated by Dr. Murray in the following way.

In the sickness occurring in the morning, and even before rising from bed, one teaspoonful of salvolatile in water has proved useful. When nausea occurs several times during the day, he recommends the use of sinapisms to the epigastric region, with a pill containing the oxalate of cerium and camphor, to be taken twice or thrice daily. In one or two cases he has found the morning nausea and vomiting stayed by getting the patient to eat either a biscuit or sandwich some time during the night, or very early in the morning. Salicine is a drug which he has used with success. Opium and ice are other agents of much value in certain cases. In the cardialgia of pregnancy great attention must be paid to the diet, which should be light and nutritious, and a small quantity of food taken at a time, and at short intervals. He recommends lime-water, in preference to soda-water, to be taken with almost every drink; and has found nitro-muriatic acid, with some bitter infusion, very useful.

### HOSPITAL FOR WOMEN, SOHO-SQUARE.

Dr. Meadows has found the greatest success from medicines which exercise a decidedly sedative action upon the nerves of the stomach. Regarding the sickness of pregnancy as a purely reflex effect of uterine irritation upon the pneumogastric nerves and solar plexus, Dr. Meadows places most reliance on drugs which diminish the sensibility of those nerves in their peripheral distribution. The tincture of aconite in five to ten minim doses, the tincture of belladonna in ten-minim doses, the liquid extract of opium in five-minim doses, or the dilute hydrocyanic acid in five-minim doses: one or other of these is the remedy which he most commonly and most successfully prescribes. He has also observed marked effects from the oxalate of cerium, or the citrate of bismuth, in five-grain doses. In very intractable cases he has sometimes tried with good effect a a small blister, about the size of a florin, over the epigastric region, the blistered surface being afterwards dressed with some diluted savin ointment containing one grain of morphine in a drachm.

# Clinical Records
# OF
# THE PARIS HOSPITALS.

We have the pleasure to commence this month a new department, which, there is little doubt, will be acceptable to the profession. Our object will be to take a passing glance at the progress of medicine and surgery in the important field of practice afforded by the hospitals of Paris. From time to time we shall publish the valuable notes and records taken by our own reporter in the course of his visits to the various hospitals.

## LA PITIE.

### INFLAMMATION OF THE TENDINOUS SHEATHS OF THE HAND AND FOREARN, CONSEQUENT ON INJURIES OF THE FINGERS.

(Under the care of Prof. Richet.)

At one of his recent clinical lectures M. Richet availed himself of the presence of two appropriate cases in his wards to make some interesting remarks in connection with the above subject. He gave the history of the two cases and drew a parallel between them. In one, the patient, a female aged seventy-four, had been affected with a whitlow at the extremity of the medius. At the time of her admission the hand and wrist were much swollen and inflamed. On both surfaces of the fingers there were several fistulous openings, through which the probe reached the denuded surface of the bone. In the palm of the hand there existed another fistulous orifice which led the probe into the sheath of the tendon. The pus had opened a passage and denuded the three phalanges, causing osteitis and necrosis of the bones. The destruction produced by the matter had been such that there was no vestige left of the fibrous sheath of the tendon. Yet the mischief remained limited to the finger. On account, however, of the altered state of the part, M. Richet amputated the whole finger. Incidentally, the Professor referred to a singular phenomenon which had been observed during the patient's illness. "You know," he said, "how seldom, at this time of life, the respiratory and circulatory organs are free from all kinds of disease. You must therefore be very careful always to auscultate aged patients before administering choloroform. I did so in this case, and discovered nothing. The next day, however, the patient presented all the symptoms of pulmonary congestion. I have already had occasion to witness this lesion supervening in aged patients after chloroformisation, and in some cases I have seen a fatal termination."

The other case was that of a butcher who had pricked his thumb in the situation of the line of division between the two phalanges. At the end of the fourth day formidable symptoms, both local and general, had manifested themselves. The carpus and entire forearm were swollen, painfully distended, and intensely red. There was no fluctuation. M. Richet opened the little wound on the thumb. A small quantity of pus exuded. The Professor expressed his conviction that the sheath of the tendon of the flexor pollicis had been injured, and was full of pus. A general and local treatment was adopted. Among the topical applications, a large blister was applied to the tumefied region. M. Richet states that he has seen admirable results follow the application of a blister in profound phlegmon. It gives considerable relief to the patient, sometimes brings on resolution, and limits the purulent collection.

M. Richet showed how different had been the progress of the disease in the two cases. A simple puncture of the thumb had determined extensive and formidable inflammatory symptoms; whereas the whitlow, after having produced necrosis of the three phalanges, had presented comparatively slight danger. No infectious matter had been observed through the puncture in the thumb, as the extent of the lesions and severe general symptoms (delirium, &c.) might have led one to suppose. The difference between the two cases took its rise solely from the anatomical disposition of the parts. "The tendons of the flexors of the fingers are enclosed in serous sheaths, which facilitate their sliding. The sheaths of the index, medius, and annular fingers stop short at two or three centimetres above the root of the fingers; whereas those of the thumb and of the little finger follow the tendons up to the serous sheath common to all the flexors which pass under the anterior annular ligament of the carpus. As a consequence of these anatomical arrangements, inflammations of the thumb and of the little finger extend with great rapidity to the anterior surface of the forearm; while those of the other fingers are confined to the diseased fingers. In the latter case the puncture had reached the sheath of the tendon of the flexor pollicis near its insertion at the phalanx. Inflammation had extended along the serous sheath up to the one common to the flexors, and from this sheath to the intermuscular cellular tissue of the forearm." The Professor remarked that it would be necessary, in order to give issue to the pus, to make a deep incision down to the pronator quadratus. The incision was made along the flexor pollicis, a large quantity of pus escaped, and a drainage tube was placed in the wound. Fifteen days after the operation the patient was in a satisfactory condition.

### OVARIOTOMY.

A few days ago M. Richet attempted ovariotomy under circumstances which deserve to be mentioned. The patient was forty-five. The tumour for two years and a half has been gradually acquiring an enormous distension. The abdomen, however, instead of bulging forwards or presenting a globular form, was flattened and enlarged. M. Richet therefore suspected the presence of extensive adhesions, and operated only at the patient's urgent request. On opening the abdomen, the adhesions between the cyst and the abdominal walls were found so numerous and resisting that M. Richet declined proceeding with the operation. Judging from the adhesions between the cyst and the abdominal walls, he felt convinced that the adhesions between the cyst and the pelvic organs would be such as to render the operation impossible. The incision was therefore closed by means of a suture, and the following night the patient died from peritonitis. The autopsy justified M. Richet's prognosis. The adhesions between the cyst and pelvic organs, especially the uterus, were such that they could not be got rid of even by means of the most careful dissection.

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## HOPITAL NECKER.

### PHOSPHORUS IN THE TREATMENT OF PARALYSIS.

(Under the care of M. DELPECH.)

M. Delpech has obtained the best results from the employment of phosphorus in paralysis. There are at present three cases in his wards submitted to this mode of treatment. In one case the disease had been brought on by the prolonged employment of sulphide of carbon; in another, by the effects of cold; and in the third, by an attack of apoplexy. The phosphorus acted at first as an aphrodisiac, producing erections, and thus manifested its peculiar action on the genital organs; mobility and sensibility were then favorably modified, without any apparent inconvenience attributable to the employment of the remedy.

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## LA CHARITE.

### PROLAPSUS OF THE UTERUS AND RECTUM.

(Under the care of Prof. GOSSELIN.)

Both the uterus and rectum protruded to a considerable extent. The rectum measured five or six centimetres. M. Gosselin, confining his intervention for the time being to the rectum, reduced the tumour by making a semilunar incision through the skin and sphincter ani towards the coccyx. The parts were then brought together and united by means of a twisted suture with metallic threads.

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## HOPITAL BEAUJON.

### CIRRHOSIS; ASCITES, MISTAKEN FOR AN OVARIAN CYST; PUNCTURE OF THE ABDOMEN, AND INJECTION WITH A SOLUTION OF IODINE, FOLLOWED BY SYMPTOMS OF PERITONITIS; ŒDEMA OF THE LEGS; PUNCTURE OF BOTH LEGS, PERFORMED WITH A LANCET; GANGRENE OF THE RIGHT LIMB; DEATH.

(Under the care of M. DOLBEAU.)

An account of the above case will doubtless be found of interest, because of the many important points of practice which it involves. No local or general symptoms of hepatic disease were observed during life. Two distinguished nosocomial surgeons of Paris, Prof. Gosselin and M. Léon Lefort, mistook the affection for an ovarian cyst; and, acting upon this opinion, the former punctured the abdomen, and introduced an injection of iodine into its cavity. Symptoms probably of peritonitis, but which were not of a very decided character, then manifested themselves; they, however, gradually subsided, and the patient recovered from the attack. At a later period both legs became swollen. Puncture of the surface was resorted to as a means of giving relief, when gangrene of the right limb ensued and carried off the patient—showing the risk of the proceeding under such circumstances.

The patient was a woman aged thirty-nine, and mother of a girl of fifteen. She had miscarried some years ago, through the ill-treatment of her husband, who had given her a kick in the belly. Since then no symptom of illness had presented itself. In the beginning of 1864 the abdomen became swollen, and distended so speedily that she was forced to seek admittance into M. Gosselin's wards about the month of July. After having carefully examined the patient, M. Gosselin came to the conclusion that the case was one of ovarian cyst, and under this impression, he punctured the abdomen and injected a solution of iodine. Symptoms apparently of peritonitis supervened, but gradually subsided. Nineteen days afterwards a second puncture was made, but this time without the employment of any injection. A clear limpid fluid was obtained. The abdomen remained as large as formerly, and the patient left the wards at her own request. She resumed her usual occupations without suffering any distress or notable inconvenience. The size of the abdomen diminished little by little, and three months later there was scarcely any tympanitis. The physiological functions of the body were performed regularly, menstruation being quite normal.

In February or March, 1867, the legs became swollen; the abdomen had gradually enlarged; yet the patient continued her business, and could take long walks without any considerable fatigue. In the month of November following, however, the enormous distension which the abdomen had then attained compelled her to seek for some medical succor, and she entered the wards of M. Dolbeau at Cochin. On November 19th a first puncture was made, and drew forth about eight litres of fluid. On December 5th a second puncture became necessary, and about as much fluid ran out. M. Dolbeau then left the service, and M. Léon Lefort, who succeeded him, diagnosed an ovarian cyst, thus confirming M. Gosselin's view of the case. On the 29th the patient left Cochin to follow M. Dolbeau to Beaujon. On the 31st puncture of the abdomen was made, and at the same time both legs were punctured in various parts with a lancet, in order to give an outlet to the fluid which painfully distended the surface. In the evening of January 3rd the patient complained of intense pain in the right leg. The next morning the limb was covered with dark spots; the thigh was larger than the other. Diarrhœa and rigor on the same evening. The next day the countenance was most anxious, and the patient suffered intense pain in the leg. Application of compresses steeped in camphorated spirits; extract of bark, four grammes; sulphate of quinine fifty centigrammes. On January 5th gangrenous patches appeared on the legs. On the 6th the inner surface of the thigh showed similar spots. Diarrhœa; intense pain; the patient suffered great distress. On the 7th the mortified patches involved the posterior and outer surfaces of the thigh. The patient died the same evening.

On examination of the body, the following morbid changes were discovered:—Ascites, with the presence of about ten litres of a clear fluid; numerous adhesions between the omentum and anterior abdominal walls, between the trasverse colon and the anterior edge and inferior surface of the liver. The liver was much larger than in its normal state, and presented a peculiar shape; it was covered with round eminences; the surface was rough; the tissue tough and granular; the whole formed a type of hypertrophic cirrhosis. The liver and both lungs were closely adherent to the diaphragm. The ovaries were quite healthy; the uterus occupied its natural situation. The internal saphena vein of the right extremity showed no signs of inflammation.

### A CASE OF SIMPLE CONTUSION OF THE THIGH, PRODUCED BY THE PASSAGE OF A WHEEL; SUBSEQUENT GANGRENE, DUE, PROBABLY, TO SOME INJURY OF THE FEMORAL ARTERY.

On February 28th, the patient, who is a carter, was brought into M. Dolbeau's wards. The next morning, on being examined, he said he was leading his horses, when he slipped under the cart, and the wheel had merely grazed the limb. He was not then in a state of drunkenness. A large ecchymosis situated at the distance of a few centimetres above the knee suggested the idea that the wheel had actually passed over the limb in that situation. There was no fracture of the thigh-bone, however, nor any laceration of the soft parts. The whole of the thigh was enormously swollen, and at the injured part considerable tension and some slight fluctuation were observed. On making a puncture with a needle, a small quantity of blood exuded. Proceeding with the examination of the patient, M. Dolbeau's attention was then struck by the existence of other and important phenomena. The lower part of the leg had lost all sensibility, and was quite cold, whereas there existed considerable hyperæsthesia of the parts which had preserved their sensibility. The beatings of the artery were quite distinct, but ceased to be felt in the foot and even at the posterior tibial artery. M. Dolbeau concluded that the artery had sustained some injury, and that mortification might be the result.

Since then the symptoms of the disease have been becoming gradually more marked, and at the time we write all the parts which at first showed signs of sensibility and of loss of heat, are covered with mortified patches; the skin slips off under the slightest pressure of the finger; the surface is speckled with livid spots. The question of immediate amputation of the leg presents some difficulty, as the ecchymosis above the knee also shows signs of mortification, and a subsequent operation might become necessary. The general state of the patient is tolerably good. M. Dolbeau is of opinion that an obliteration of the artery has taken place at some indefinite point.

### TUMOUR AT THE UPPER PART OF THE STERNUM SUPPOSED TO BE OF A CANCEROUS CHARACTER.

The patient is a robust man, and was never ill before. Three months since he discovered the existence of a tumour which he bears at the upper part of the sternum. At present the tumour is about as large as a small apple. It cannot be reduced, is quite hard, and yet presents some fluctuation in the centre. The skin does not adhere to it, and has preserved its natural appearance. Furthermore, the morbid growth is immovable, and adheres very certainly to the sternum. The patient says he has never been affected with syphilis, nor does he present any sign of this disease. His parents are healthy. Treatment with iodine, *intus et extus*, has as yet produced no favorable results.

The notes of the above cases have been obligingly furnished by MM. Bourgeois and Magdelain, M. Dolbeau's house-surgeons.

# Medical Societies.

MAY—JUNE.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

MR. SAMUEL SOLLY, F.R.S., President.

### A CASE OF EXCISION OF THE WRIST BY LISTER'S METHOD.

BY J. W. HULKE, F.R.S.

THE author briefly points out the differences of Lister's method of excising the wrist from the common methods by lateral incision, or by a single cut across the back of the joint, and then narrates a case where he successfully employed it. The patient, a groom, had disease of the left wrist, of several months' duration. After other plans of treatment had failed, the author removed all the carpal bones, and the ends of the radius and ulna, as also those of the metacarpal bones, by Lister's method, and the patient recovered such a useful hand that he became coachman to a nobleman, and drove a brougham in town.

### ON EXCISION OF THE WRIST-JOINT.

BY JAMES F. WEST, F.R.C.S.,

Surgeon to the Queen's Hospital, Birmingham.

(*Communicated by the* PRESIDENT.)

This paper, on excision of the wrist-joint, gives an account of three cases in which that operation has been performed at the Queen's Hospital, Birmingham, with marked success, and is accompanied by photographs showing the state of the parts some months after the operation. The history of the operation was briefly recited, particular attention being called to Professor Lister's memoir on the subject, by which the cases suitable for operation are more clearly defined, and many minute yet important points in the treatment of the cases subsequent to the operation are made out. Mr. West insisted on the importance of early removal of all the carious portions of bone, but the retention of those parts, either of the radius and ulna or of the carpal bones, which appeared free from disease; he also advocated free separation of the thumb from the rest of the hand during the treatment of the case, so as to counteract the tendency to inversion of the thumb, which always follows excision of the wrist; and further, the early use of passive motion of the fingers, with a view to prevent their becoming stiff and useless. In the first and third cases the whole of the bones entering into the formation of the wrist-joint were removed; in the second, a carious fragment of radius, extending for about an inch above the joint, was alone removed. The patient recovered in each case with a hand having considerable strength and mobility, after a variable period of time, extending from three months to two years.

Sir W. Fergusson said he was much gratified that these papers had been so well received, as it indicated that the resection of joints was coming into favor. These operations had now almost reached their utmost development, as almost every joint had been now resected. Excision of the wrist had given him much thought, and had seemed to him almost less satisfactory than that of any other joint. Still Mr. Hulke's case showed how admirable the result might be. One thing of value had to be noticed in both papers. Neither gentleman dealt with the joint impatiently; neither jumped to conclusions when the sinuses did not heal, but each sought for the root of the mischief in further disease of the bone; he did not rashly amputate, but removed the diseased structures, and the wound healed. Thirteen months was spoken of as a period to be waited; he might say that three times that term was not too much. As to the operation, he thought he might claim the priority of its performance in London; and he decidedly preferred the radial and ulnar incisions. He avoided cutting the tendons; and if in certain cases he made an incision on the back of the wrist, he carefully cut between them. He was anxious for information as to results even in cases where the tendons had been cut across. He would also remark that surgery, like history, repeated itself. Thirty years ago, Sir Philip Crampton b ought forward the handwriting of a soldier after resection of the elbow as a proof of the great success of the operation; and here we had Mr. West doing the very same thing after excision of the wrist.

Mr. Henry Lee said that allusion had been made to Mr. Holme's opinions as to the value of this operation; and as his colleague was absent, he thought himself bound to state that since the appearance of Lister's paper they had been greatly modified. He himself had removed the joint by a transverse incision; and the result was satisfactory, as the patient possessed both extension and flexion. He thought that after the bones were removed, the extremities were perhaps kept too far apart.

Mr. Birkett was indebted for the papers, but thought we probably wanted to know more about unsuccessful cases. He would therefore set the example. The practice at Guy's was to remove all dead bone, which they were sure to reach by following the sinuses. In one case narrated there was said to be great difficulty in removing the carious bone: he had not found it thus, as the bones had probably been further gone. His case was a complete failure, perhaps from the age of the patient. The constitution was not strong enough, and they had to amputate.

Mr. Callender said that whilst it was the desire of every surgeon to do his best for his patients, he must be influenced by age and constitution. St Bartholomew's was situated in the middle of a large printing district, so that many patients were brought in with injuries to their hands. The boys recovered wonderfully; but, on the other hand, he thought that compound dislocation of the wrist in advanced life was a most formidable injury. The surroundings must all be considered, as success probably depended on careful selection. He would remark with regard to Lister's operation, that it required great care in details.

Mr. Hulke and Mr. West replied.

Mr. J. D. Hill exhibited a patient on whom excision of the elbow-joint had been successfully performed, for a compound fracture of the olecranon process of the ulna and transverse fracture of the patella.

### ON THE STATE OF THE OPTIC NERVES AND RETINÆ AS SEEN IN THE INSANE.

BY T. CLIFFORD ALLBUTT, M.A., M.B. CANTAB., F.L.S., ETC.,

Physician to the Leeds General Infirmary.

The author stated that he was first led to examine the eye by the ophthalmoscope in that form of insanity known as general paralysis. He did so in the chance of finding disease in the vessels of the retina resembling that which is described as existing in the blood-vessels of the brain in that disease. This was not the case; but another change—viz., atrophy of the optic nerve—was constantly found. The cases were taken chiefly from those in the West Riding Asylum at Wakefield; some also were taken from the North and East Riding Asylum at Clifton, near York. The author expressed his warm thanks to Dr. Crichton Browne, of the Wakefield Asylum, and also to Dr. Christie, of the York Asylum, for their kind interest and aid in his observations. In all 214 cases were examined.

(*a*) *General Paralysis.*—Dr. Allbutt examined 53 cases. In 41 of these cases distinct disease of the optic nerve was found, 7 are marked as doubtful, and 5 are normal. He drew the following conclusions from his schedules: 1. That atrophy of the optic disc takes place in nearly every case of general paralysis, and is commonly accompanied by atrophy of the olfactory nerves. 2. That it is not to be distinctly seen until the end of the first stage, as it slowly travels down from the optic centres. 3. That it begins as a pink suffusion of the nerve, without much stasis or exudation, and ends as simple white atrophy. The author likened this process to the so-called "red-and-white softening" in the brain. 4. That the atrophy of the nerve is not in constant proportion to the ataxy of the muscles of the orbit. 5. That it is in relation with the state of the pupil, which is contracted during the early stages, and dilated in the fully atrophic stage. 6. That as the symptom is not a very early one, it probably has not much diagnostic value: its pathological signifiance is probably considerable.

(*b*) *Mania.*—Of this disease the author brought forward 51 cases. In 25 cases symptomatic changes were found with the ophthalmoscope; 13 cases were noted as doubtful; and 13 were either healthy, or presented non-symptomatic lesions, such as glaucoma &c. He made the following propositions :—1. That the ophthalmoscope reveals symptomatic changes in a large number of cases of mania. 2. That these are most common where other symptoms of organic disease exist, and seem not unfrequently to depend upon meningitis. 3. That after a paroxysm of mania, there remains a paralysis of the blood-vessels in and about the discs, causing obvious hyperæmia. 4. That during the paroxysm there is, perhaps, a spasm of these vessels, as suggested by one case. 5. That the permanent changes are those of stasis, of consecutive atrophy, of simple atrophy, or of a mixed character.

(*c*) *Dementia.*—Out of 38 cases, the author found marked disease of the optic nerves or retina in 23, he recorded 6 as doubtful, and 9 were healthy. Many of these cases were known to depend upon organic disease, and, like those of mania, were chosen for their severity. In simple acute dementia, however profound, if independent of organic disease, the author, thinks no optic changes take place.

(*d, e*) *Melancholy* and *Monomaniā* were tabled together for convenience. Of 17 cases, in 3 only was found disease of the eye. Few of these cases depend upon organic disease, Anæmia of the retina was commonly found, however, in melancholia.

(*f*) *Insanity depending upon epilepsy.*—Forty-three cases were noted. In 15, disease of the optic nerve or retina was found, 9 were doubtful, and 19 showed no change. Simple epilepsy is not commonly followed by disease of the optic nerve. In most of the cases presenting optic changes, organic disease was known to exist from the other symptoms.

(*g*) *Idiocy.*—The author had previously noticed amaurosis in idiots. He examined, therefore, 12 cases; and he found marked atrophy of the discs in the large proportion of 5, 1 was changing, and 2 were noted as doubtful. He asked whether this atrophy would be found to depend upon encephalic inflammation in infancy.

The President, Dr. Tuke, Dr. Leared, and Mr. Carter took part in the discussion, the latter gentlemen corroborating Dr. Allbutt's views.

### AN ACCOUNT OF A CASE OF ARABIAN ELEPHANTIASIS, SUCCESSFULLY TREATED BY COMPRESSION OF THE FEMORAL ARTERY, AND THE APPLICATION OF THE STARCHED AND SIMPLE BANDAGE.

BY JOHN COCKLE, M. D.,

AND

JOHN DANIEL HILL, F.R.C.S.,

Surgeon to the Royal Free Hospital.

The patient, H. C——, aged forty-two, by occupation a governess, married, but without issue, was a native of Calcutta. During *the last fourteen years* the limb had been gradually enlarging. She has had several attacks of ague and fever. On her admission in August last the general health was good; but locally, besides the enlargement of the limb, the veins were in places tortuous and dilated, and induration existed in the situation of the femoral vein and glands below Poupart's ligament. When the sketch was taken by the artist, on admission, the girth of the calf was 24 inches. After about one week's rest in bed, and before the actual commencement of compression, the authors found the measurement to be 22¼ inches. The femoral artery was compressed, at Scarpa's triangle, by means of the horse-shoe tourniquet (at first for a short time, and then permanently), but never to the extent of completely arresting the circulation through the artery. Simultaneously with compression, the limb was, at first encased in a starched bandage; later, three simple rollers were used. The reduction of size of the limb, when the compression was permanent, proceeded nearly as rapidly as in cases in which the main trunk had been tied. It is now (Jan. 7th) nearly that of its fellow.

The President asked if there were any indications of a deposit of fibrinous matter in the intestine.

Mr. Cooper remarked that such cases were far from common; he had seen two—one in a woman much like this, with the skin covered by ichthyosis and ulcerated, but whom he had lost sight of. The other was in a syphilitic male of irregular habits; both legs were enlarged and had deep wounds, with extensive necrosis of the tibia.

Dr. C. T. Richardson stated that when, some years ago, he had brought a similar case before the Society, Dr. Webb, who had been in India, said that he had seen much of the disease in Bengal, and that he believed it to be partly of malarious and partly of syphilitic origin.

Mr. Hill, in reply, stated that there was nothing peculiar about the bowels, and no history of syphilis, but there was evidence of the veins having been obliterated.

A paper from Dr. Christie, of the North Riding Asylum, Clifton, on a

### CASE OF DEFICIENT CORPUS CALLOSUM,

was read. A patient, aged twenty, died; and it was found at the autopsy that the corpus callosum was wanting. He had been idiotic and without the power of speech from birth. The calvaria was small, dense, and shelving off considerably in the anterior portion. The encephalon was very small, and weighed only 28¾ oz. The specific gravity of the grey matter was 1040, and of the white 1045.

Dr. Ballard thought the absence of the body was pathological, not congenital.

Dr. Webster spoke of the rarity of such cases in the insane.

Dr. Meryon observed that there ordinarily was defect of mind in these cases, which had an important bearing on the question of aphasia. In two cases reported by Mr. Paget and by Mr. Solly respectively the power of speech was present; in all others it was absent. Abercrombie's cases went on to complete loss of mind.

### NOTES RESPECTING NON-UNITING FRACTURES.

BY GEORGE W. CALLENDER,

Assistant-Surgeon to and Lecturer on Anatomy at St. Bartholomew's Hospital.

After referring to the statements made by Amesbury and Hamilton respecting non-uniting fractures, the author relates a series of cases to show that the union of a broken bone is never prevented, although it may be delayed, by constitutional causes. Instances are given of the repair of fractures in cases of recent and long-standing paralysis, and cases of non-union occurring during childhood are incidentally referred to. The results of the treatment of fractures at St. Bartholomew's Hospital during the past seven years are mentioned; also the history of a case of non-uniting fracture of the thigh, and cases of non-union from special local causes. It is concluded that three well-defined varieties must be enumerated of fractures which fail to unite:—

1. Fractures, not inaptly termed spontaneous, which ensue from diseases of bone; in which it is evident that no union is likely to take place.

2. Fractures (*a*) with separation of the bone and periosteum to such an extent that there cannot be thrown out bone-material enough to fill up the gap between the fragments; (*b*) occurring

through bones not provided with periosteum, when it is difficult to keep the broken ends together.

3. All fractures other than the preceding; and in these cases, although union may be delayed, it never ultimately fails, except as the result of bad management of the injury.

Several cases are narrated to show the effect of non-uniting fracture upon joint movements, and the treatment of those injuries where the thigh is the bone involved is briefly referred to. Cases are cited in illustration of the great length of time after the lapse of which a fracture, if properly treated, may be repaired, and the occasional good results from mere fibrous union are illustrated by pathological observations. The question of joint-stiffness after fractures is considered and the importance of not interfering with such stiffness until the fracture is firmly united is insisted upon, and reasons are given for the presumption that such premature interference by the use of passive movements is a frequent cause of non-union.

The following are the conclusions arrived at:—

Non-union of an ordinary fracture should never occur.

Under careful treatment bones will unite two years or longer after the occurrence of the fracture.

It is reasonable to suppose that such fractures would have united at an earlier period, if properly treated.

Treatment of delayed union should consist—

1st. In the improvement of the health, and in the avoidance of local obstructions to the circulation.

2nd. In placing the broken bone in the best position attainable.

3rd. In leaving it at rest until it unites, its doing so being simply a question of time.

4th. In avoiding all attempts to overcome the stiffness of joints adj cent to, but not involved in a fracture, until the bone is firmly united; and this applies also to the management of fractures which unite in the usual time.

Mr. Weeden Cooke observed that there were many fractures brought into the Royal Free Hospital which were ordinarily treated by the house-surgeon, and he thought that subsequent interference did no good. Very rarely they had want of union, although patients sometimes remained a good long time in hospital. Sometimes they found that the decoction of hartshorn did much good.

Dr. Webster remarked that, as to the age at which union might take place, he had not long ago seen at Naples an old woman said to be 113 years of age. The shaft of her thigh-bone had been broken, but the surgeon declared that it was firmly united.

Mr. Holthouse thought that Mr. Callender differed materially from Hamilton, who advocates early getting about as conducive to rapid recovery. So also did White, of Manchester. He was opposed to any motion of the bone, and therefore approved of fixed apparatus. If the health suffered union might be delayed, as in the case of a butcher who was long ill, but rapidly recovered when his diet was improved.

Mr. Curling failed to realise any special point the author attempted to bring out of his paper. He thought that non-united fractures rarely occurred in hospitals, but rather at sea, or where careful treatment was impossible. He greatly approved of the perseverance recommended. He narrated the case of a man who was wounded, and had his humerus broken. At the end of seven months he was recommended to go home, as no union had taken place. Six weeks after firm union was obtained. He had heard of cures after two years, but had not seen any. He sided with Mr. Callender rather than with Hamilton in the treatment of deferred union.

Mr. T. Smith could not but think that failure was too often attributed to bad treatment. He thought Mr. Callender was right in the principles laid down by him, but what was to be done at the end of the two years? He would classify such cases into two groups; those of fibrous union and those of false joint. He would take the latter. No keeping at rest was likely to be of use here, although in the other group it might succeed. He thought that if in a child union were delayed for a year, it probably would be so for life.

Mr. Birkett, in looking back, could recall very few cases of ununited fracture at Guy's. He remembered one under the care of Mr. Barnsby Cooper, another a simple fracture of the humerus and a third of the tibia and fibula, the tibia being much comminuted. In his own practice one had occurred, being a compound fracture of the humerus. He used ivory pegs twice and it did well.

Mr. Eastes said that another at Guy's had been related to him, the case being one of simple fracture of the tibia and fibula. The man never ate vegetables, and when these were ordered union rapidly resulted. Another had been in Mr. Hilton's ward, the tibia and fibula being broken. There was much œdema, and a tourniquet was applied to the part. The fracture improved.

In the course of his reply Mr. Callender stated he was of opinion that the plugging of venous trunks had an important bearing on the healing of fractures.

## CLINICAL SOCIETY OF LONDON.

Sir Thomas Watson, Bart., President, in the Chair.

Dr. Greenhow communicated.

### FOUR CASES OF INTERMITTENT OR PAROXYSMAL HÆMATURIA.

The first case was that of a man aged thirty-one, who had had seven attacks, all of which had occurred during the preceeding fifteen months. The patient was admitted into the hospital on the 17th of September last. His skin was cold, and slightly jaundiced; he complained of pain in the loins. The urine passed shortly after admission was of normal specific gravity, porter colored, yellow and chocolate colored precipitate when heated, and was found on microscopical examination to contain crystals of oxalate of lime and colored granules, most of which were free, while others were contained in hyaline casts. After a few hours the color had entirely disappeared. The urine was pale, and contained a mere trace of albumen. The previous attacks had been of similar duration, and had always come on bronchial tubes. This deposit of what he had then called "cacoplastic" lymph, no doubt often occurred as a disease of itself, but he thought it was most frequent as a modification of ordinary phthisis; its pathological relation to true tuberculous deposits appeared to him to be very close. The latter, which in his "Principles of Medicine", he had designated "aplastic," seemed to him to differ from the former principally in its tendency to softening and disintegration; but he regarded this difference as one rather of degree than of nature, for all gradations were met with between them. Those cases of phthisis in which the pulmonary disease tends to assume the fibrous character might be generally distinguished by the collapse of the affected side of the chest, and by the displacement of the heart upwards, especially where extensive softening and excavation of the diseased organ had previously taken place. But the character which it is most important to recognise is their slowness of progress, for it is to this tendency to chronicity that they owe their comparative curability. The result of post-mortem examination seemed to show that the anatomical peculiarity of fibrous phthisis consists in the substitution of a fibrous for a corpuscular deposit, which, notwithstanding, is so far cacoplastic as to be capable of cheesy degeneration. The marked tendency which exists to obsolescence, indicated by puckering and cicatrisation processes, contrasted strongly with the deliquescence and breaking down of tissue which are the anatomical expression of the more acute forms of consumption.

Dr. Greenhow objected to the employment of the term fibrous phthisis to designate the case communicated by Dr. Clark, on the ground of inaccuracy. He regarded the disease of which it was an example as differing from pulmonary consumption in its origin, progress, and issue. In illustration he referred to two out of many cases which had come under his observation; both of them were of slow progress and long duration, the patients retaining their general health, and being able to follow their ordinary occupations; in one the disease had evidently arisen from the inhalation of dust, independently of any constitutional cause or predisposition, while in the other it appeared to have been caused by a blow on the chest in a pugilistic encounter. In referring to the pathological appearances observed in these cases, Dr. Greenhow adverted to their resemblance to those seen in the so-called peripneumonia exudativa of bovine animals, in which the diseased lung is converted into a solid flesh-like mass, intersected by white bands formed by plastic effusion into the interlobular partitions, the lung-tissue itself presenting the appearance of a granular mass, traversed in all directions by bands of fibres.

Dr. Anstie adverted to certain cases narrated by French writers, in which, although the lungs after death presented the anatomical characters of fibrous induration and contraction, the progress of the disease to a fatal termination was extremely rapid; and related a case of this nature which had come under his own observation some years previously. He thought it most important to inquire whether such cases are identical with the more chronic cases now under consideration. The whole question appeared to him to turn much more on etiological than on anatomical considerations, and particularly on the facts of hereditary transmission. With this view he would ask Dr. Williams, and others of large experience in chest diseases who were present, whether they had observed that in the offspring of parents affected with "fibrous phthisis," the disease invariably assumed the same character, or *vice versâ*.

Dr. Powell related a case which had recently occurred at the Consumption Hospital under the care of Dr. Pollock, which appeared to have all the characters of that narrated by Dr. Clark. The patient had been under observation for more than seven years having been five times admitted into the hospital during the first part of his illness. The right lung was entirely free from disease, while a large cavity existed in the left. At his last admission the right lung also became diseased. After death the lung was found to be converted into a fibroid mass, containing a large cavity in the upper lobe with indurated walls. The right lung contained disseminated masses of induration, most of which were caseous. There was waxy degeneration of the kidneys and liver, to which changes Dr. Powell considered that the fatal termination was to be attributed rather than to the pulmonary disease.

Dr. Marcet remarked he had attended a case resembling in some respects that communicated by Dr. Andrew Clark. His (Dr. Marcet's) patient, six months before death, exhibited symptoms of extensive consolidation of the left lung, although none but bronchitic signs in the right. There had been hæmoptysis and purulent expectoration; the disease had been slow in its progress, lasting for at least five or six years, and when dying the patient had become pallid and waxy-looking. His urine had been albuminous for a considerable period. This patient did not die of disease of the lungs, but of failure of the heart's action, in consequence of, what appeared to be on the post-mortem examination, a mass of fat in the right ventricle and auricle. The kidneys were also concerned in the fatal termination, being in a condition of advanced fatty degeneration. The peritoneum was loaded with fat. The left lung was greatly contracted, and transformed into a tough, resistant, spongy mass, adhering very firmly to the thoracic parieties; no grey granulations could be observed in it. Cavities were detected at the apex, lined with calcareous matter, but few cheesy masses were present; these were of a small size, and undergoing the calcareous transformation. The right lung was not consolidated; it exhibited no grey granulations, or no cheesy deposits, adhered to the thorax at the apex and posteriorly, and was in some measure emphysematous.

Dr. Ringer pointed out that the essential characteristics of the disease described by Dr. Clark consisted not so much in contraction or induration of the lung as in its inseparable relation with albuminoid degeneration of other organs.

Dr. Sutton, referring to his own researches, recalled the attention of the Society to the fact that, although there are such cases as had been described by previous speakers, in which pulmonary induration and contraction occurs as a consequence or complication of tubercle, these cases are not at all those understood by Dr. Clark as fibrous phthisis, in which there neither was nor ever had been tubercle. Fibroid induration resulting from tubercle was one thing, fibroid phthisis an entirely different thing.

Dr. Julius Pollock, after adverting to observations made by him at King's College Hospital, wished to know what Dr. Clark had to say as to the treatment of the disease. Dr. Pollock entirely disagreed with Dr. Clark in the interpretation he had given of his case. It appeared to him to be one of ordinary chronic phthisis, in which the patient had not died of degenerative disease of other organs. The other lung would have become the seat of tubercular deposits, just as in the instance referred to by Dr. Powell. He considered that the concurrence of marked contraction of one side of the chest with an equally marked tendency to chronicity of progress was a matter of common observation in phthisis: and that in whatever degree this manifested itself, it always afforded ground for favorable prognosis. It showed that a process had commenced in the diseased lung which, if it went on long enough, would lead to the limitation and contraction of existing tuberculous deposits, and to the arrest of the disease. Of cases presenting these characters, Dr. Pollock had seen an infinite number, and had recorded a good many; but he did not think that anything would be gained by giving it a special name, for the disease was not in his opinion a separate entity; it could not be separated from ordinary tubercular disease, of which it was a mere complication or concomitant, its peculiarity being rather one of progress and development than of nature. In some of the cases which he had watched to their fatal issue, the result was due, as in Dr. Clark's case, to morbid changes in other organs; but in all which had run a sufficiently protracted course, the sound lung had eventually become affected, death occurring not from extension of the disease in the organ first attacked, but in that which had for years remained sound. In the absence of other complications he regarded the immunity of one lung as the test of the patient's security. In conclusion, Dr. Pollock dwelt upon the necessity of employing the word tubercle in a broad and comprehensive sense, so as to include the great varieties of morbid processes in which tuberculous characters manifest themselves.

Dr. Clark replied.

The President observed that whilst he could congratulate the Society on its prosperity, and on the increasing numbers of its members, he must remind them that its primary and special object was the force and action of medicines—in a word, how to cure disease. No doubt they contemplated, also, the consideration of doubtful and of new cases of disease, for such must be known and well examined before treatment could be dealt with. The two objects of inquiry were correlative, and the Society was at once clinical and therapeutical, but mainly the latter. Indeed, he would himself have preferred that the Society should have been called the Therapeutic Society. There was a danger of its drifting insensibly into a sort of junior Medico-Chirurgical Society. Any attempt to rival that older Society would be ungenerous, and as unsuccessful as it was superfluous and unnecessary. The Society would be nothing if it were not therapeutical, and, strongly impressed with this, the Council had suggested the appointment of committees, and had nominated some subjects of inquiry. Those subjects were few in numbers, but the Council wished, and he thought wisely, that subjects of inquiry should be suggested by individual members of the Society, and such suggestions he should be happy to receive.

The Secretary stated that the President had been requested to appoint committees for the investigation of the following subjects:—1 The value of various methods of employing carbolic acid in the treatment of wounds. 2. The value of the methods of acupressure and of torsion as means of arresting hæmorrhage. 3. The value of quinine as a means of diminishing bodily temperature and pulse in pyrexia. 4. The value of bromide of potassium in the treatment of epilepsy.

### CHRONIC RHEUMATIC ARTHRITIS.

Mr. Holthouse showed a case of the above in a male aged nineteen. In his remarks he dwelt chiefly on the unusual circumstance of the disease occurring in one so young, on the great amount of shortening in a short period of time, combined with the chronic and subacute character of the symptoms.

Mr. Bryant and Mr. Thomas Smith commented on the name given to this disease, and the latter suggested that the case more closely resembled one of ordinary caries.

Dr. Julius Pollock thought that the treatment was a question of much interest. Mr. Holthouse referred to the use of tonics, but with the doubt as to the nature of the disease. He thought that colchicum might have been advantageously employed.

Mr. Maunder pointed out that in the case before the Society the hollow behind the trochanter remained, and that the soft parts around appeared quite free from disease. On these grounds he inclined to agree with Mr. Holthouse as to the nature of the malady.

Mr. Holthouse repeated that there was no signs of ordinary hip disease, no acute symptoms, and absence of pain and of suppuration. He placed great reliance on the treatment of rest, and in the present instance he thought some good had resulted from the application of a weight to the limb.

A committtee was appointed to report upon this case.

### ECTOPIA VESICÆ

Mr. Thomas Smith showed a female, four and a half years of age, suffering from ectopia vesicæ. The vagina could be traced, and the uterus could be felt through the rectum. The labiæ were fully, but the nymphæ only slightly developed; the pubes cleft, and the abdomen deficient in the middle line from the umbilicus downwards. He observed that in this case the bladder was covered with a structure resembling skin as low as the level of the ureters, and that this surface did not cause trouble from its irritability. He had found the same condition in another case of this defect in a female child, but had never observed it in the male. He did not think that surgery could do much for this patient, especially as the freedom from local irritability rendered it unnecessary to attempt to cover the front of the bladder with integument.

Mr. Bryant remarked that in these cases it was unusual to find evidence of the vagina and uterus. In three cases which he had met with those parts were not present. He thought in the lapse of years that the bladder inclined to retract within the pelvis, so that the exposed surface was greatly reduced in size, becoming in fact a mere fissure, and that the mucous membrane tended to become very like ordinary integument.

mour, weighing fifty-five pounds, taken, after death from the abdomen of a woman aged sixty-three. The history given was that four years ago she first observed a swelling, she thought in the right iliac region, and it had gradually enlarged. The bulk was its principal source of annoyance, from pressing upon the bladder and rectum, as also on the iliac veins, causing œdema of both legs. She had been able to get about until the 17th of last January, when Mr. Forster first saw her. The abdomen was then enormously distended, with a most distinct sense of fluctuation, and the vibratile wave was perfect over the whole. Dr. Wilks had seen the patient a few hours previous, and recommended immediate recourse to tapping. Mr. Forster had no hesitation in attempting the operation and plunged the trocar in four places into what subsequently turned out to be a solid mass, and which was evident when the instrument was used. No fluid appeared until the canula was being withdrawn, when a small quantity oozed away, and continued to do so afterwards as long as the patient lived. Dr. Braxton Hicks saw this woman the next day, and was so decidedly of opinion that fluid existed, that he recommended an incision should be made until it was reached, with which Mr. Forster did not concur. No further operative measures were resorted to. The patient lived sixteen days afterwards, and died from apnœa. Autopsy revealed a large fibro-fatty mass occupying the whole of the abdomen; no fluid; slight adhesions easily torn down were seen between the tumour and the parietes of the abdomen, the walls of which were remarkably thin; there was a strong adhesion to the under surface of the diaphragm; no pedicle could be found. The intestines were all behind the mass, except the ascending colon, which passed in front of the tumour, to the right of the mesian line. All the viscera were healthy. Upon making a section through the mass, it was seen to be composed of lobules of fat and fibre tissue. Mr. Forster believed it to be omental.

Dr. Leared showed, for a gentlemen in the country, a Dilated Gall-bladder removed from the body of a woman who, a year before her death, struck her side against a post. Ever after she suffered from vomiting, often yeasty, but there was no jaundice, and but little pain. The liver was cancerous and nodulated, whilst the gall-bladder contained no bile,—only a straw-colored fluid. The cancer involved the duodenum.

Dr. Greenhow brought forward a boy having Complete Displacement of the Heart, it beating under the right nipple. The left lung was very large, the right solid and contracted, and there was no history of acute disease.

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## HARVEIAN SOCIETY.

Mr. Ernest Hart, President.

Dr. Fuller read a paper on

### THE DOSES AND ACTIONS OF MEDICINES.

He considered that the prevalent distrust in the efficacy of drugs might all be resolved into the three following formulæ: 1. The natural reaction from the overweening confidence in medicine, and from the wholesale and indiscriminate administration of drugs which prevailed at the beginning of the present century. 2. The discovery that certain disorders, if left to themselves, in many instances tend to recovery. 3. The prevalence of extreme ignorance as to the dose in which each drug is tolerated by the system, and as to the dose in which it must be admistered in order to obtain its curative effect. After enlarging somewhat on these points, Dr. Fuller concluded an able paper by remarking that by one means or another distrust had come to prevail, and discredit had been thrown on the curative action of drugs. Disease was left to take its natural course, and homœopathy was practised under the guise of scientific medicine. The public, who see by the reports of cases in our periodical literature how little heed some men pay to medicine, were becoming indoctrinated with the belief that drugs are of no avail, and were consistently betaking themselves to the professed homœopath. For this belief Dr. Fuller maintained that there were absolutely no grounds, and urged the Society to appoint a committee for the purpose of investigating the subject of therapeutics and the action of medicines. If, he said, it should prove, on inquiry, that drugs are of no avail in modifying the course of disease, let us, as honest men, avow our mistake, alter our practice, and admit that homœopaths have had just cause for their vilification of the legitimate practice of medicine; but if, on the contrary, the labors of the committee resulted in establishing the curative action of medicines, where properly administered in doses and in combinations suited to the exigencies of each case, the profession might fairly hope to obtain as the result of the investigation some trustworthy therapeutical data. The investigation must necessarily be coeval with the existence of the healing art; but the labors of the committee, if carefully conducted, would serve as a model to future inquirers; the conclusions at which they arrived would be a nucleus to which other facts might be added from time to time, until information was obtained in the healing art which would be indispensable to every practitioner; and meanwhile the Harveian Society would have the honor of inaugurating an inquiry which would not have been unworthy of the Royal College of Physicians.

A long and animated discussion took place, in which Mr. Sedgwick, Dr. C. J. B. Williams, Dr. Broadbent, Dr. Sutton, Dr. Drysdale, Mr. Brown, Dr. Kidd, Mr. Baker, Dr. Silver, and others, took part.

Eventually a motion was carried appointing a committee to make a preliminary report to the Society at as early a date as convenient. The committee is to consist of the following, with power to add to their number: Drs. Broadbent, Tilbury Fox, Fuller, Hare, Hickman, Handfield Jones, Norton, Pollock, and Sieveking; Messrs. Ernest Hart, Curgenven, and Sedgwick.

An old woman, aged seventy-six, of Birmingham, has been committed for trial on a charge of attempting to administer a noxious drug for the purpose of procuring abortion. Dr. Hill, the borough analyst, stated that the liquid contained a vegetable ingredient of a poisonous nature, which if taken in considerable quantity was calculated to produce miscarriage.

# Editorial

## THE ADVERTISING QUACKS.

It might appear very paradoxical to say that there are some things taking place in modern society of so glaring and abominable a character that their existence has on this very account been permitted; and yet we have only to regard the toleration of disgraceful museums in the heart of our metropolis and the regular appearance of quack advertisements, whose immorality and indecency are scarcely concealed under the garb of the medical phraseology in which their authors deck them, to be assured of the fact.

To no other class of the community are the evils and the immoral and shameful nature of the proceedings of the whole herd of these rapacious quacks so well known as to the medical profession. Were we to invite information on the subject we should be inundated with letters in proof of the disastrous results which have attended, and up to this very moment are attending, their practices. The late occurrences in connexion with Mr. Speke have again brought the whole system into prominence: but so far from that gentleman being an isolated instance among the educated classes of a victim robbed of money and peace of mind, and driven into a condition of melancholia by the ruffianly designs of the craft, the case is only too common. There are few medical practitioners who have not met with persons physically and mentally ruined by similar procedures. It is, no doubt, a very facile way, and one eminently convenient to the quacks themselves, for the public to pretend to ignore their existence, to pity the weakness and imbecility of their victims, and do nothing. During all the time, however, the most innocent and unwary, as well as the immoral and vicious, are being caught in the meshes of the nets spread by these men, who never let one of their victims escape until he has paid the uttermost farthing, and it would not be at all untruthful to add, not until his condition very much resembled those we read of as cast into outer darkness.

The public has not been insensible to the truth of all this; but the Government of this country, under some absurd pretext of the liberty of the subject we suppose, has been content hitherto to let these things go on, until their inert conduct has, we may say, amounted to something like a criminal degree of toleration. An honest indignation has actuated us in our crusade against the whole pestilent herd, and for years and years we have invited attention to this subject. We have also always represented, at the risk of incurring a not inconsiderable amount of enmity, the reprehensible conduct of those journals who persistently prostituted their advertising columns to the foul uses which these classes made of them, turning the family paper, in many instances, into a vile machinary for undermining health and happiness, for destroying domestic purity, or for engendering demoralising imaginations. The leading journals, to their infinite credit be it said, never allowed their columns to be sullied by these advertisements, and their example was, in some instances quickly, in others tardily followed, until it extended over a very large circle. We have still to regret the number of the exceptions, as well as the slowness with which a healthier moral and more responsible sense of the duties which a journalist owes to its readers has extended. Had it been otherwise, a very large amount of misery would have been spared our race, and the worst class of quacks would have shrunk into obscurity.

But it may be said, what have we to propose? Our reply is simply that which rises in the mind of every honest man who has ventured into any one of those museums which, under cover of the prefix "anatomical," display the most loathsome objects for inspection—Government ought to take some immediate action in the matter. If there be any difficulty in passing a Bill which should include all those of an objectionable and demoralising character, and closing them forthwith, without touching those of a scientific or artistic description, there is still another course open. Our theatres and places of amusement are all licensed, and no representation of a dramatic character can take place without the express permission of the authorities who exercise a supervision over all such productions in order to preserve the stage from being a crying evil and an engine of public demoralisation. It surely might be the same with those so-called anatomical museums which flagrantly outrage the sense of public decency and morality. If a man were really desirous of instructing the public in matters of anatomy and physiology by legitimate methods, he would have no objection to submit his objects and figures to the scrutiny of a Goverment official, on whom should rest the responsibility of permitting them to be exhibited, and who should be armed with powers for inspecting and supervising the places where they were exhibited, and of refusing the necessary license in case of need. No Medical Act that can be framed is equal to coping with the evil. Where a man's livelihood depends upon his representing himself as a doctor, he will exert all his ingenuity to devise means to escape an infringement of the letter of the law. Nor do we think the onus of taking the necessary proceedings should devolve upon members of our profession. Let the power be exercised with ever so much care and judgment, we are sure to incur the imputation of being interested or of being animated by class feeling; for those whose interests are threatened will immediately raise a cry about the liberty of the subject. The proper course, it appears to us, is the one we have indicated; and all these disgusting exhibitions would soon be things of the past.

As regards advertisements which conceal their intentions under the cloak of being medical, their true nature and purpose must be sufficiently apparent to any average intellect; and it is one of the plainest duties which all engaged in literature and journalism owe to the public to refuse such a place in their columns. If all the readers of a newspaper on discovering advertisements about "Secret Diseases," and what not, would only cease to read the offending paper, and make their determination known to the publishers, there would soon be an end of one of the vilest and most heartless systems of imposture and robbery of this or any age.

No man should be allowed to practice for money whose name is not upon the Medical Register, and anyone doing so should be rendered liable to criminal proceedings. The Medical Act should be amended to this effect, and admit of a magistrate taking immediate action in the matter on information being laid before him that a person had, directly or indirectly, offered to treat disease for reward, such person's name not being duly registered.

## HOSPITAL NURSES.

With the improvement of therapeutics, the function of the nurse has risen in importance; and certainly it must be gratifying to every medical man, as well as to the public at large, to witness the numbers of intelligent, accomplished, and even well-born ladies who now devote themselves to the noble, but often irksome and unpleasant, task of waiting upon the sick. Nothing but praise should be bestowed upon the objects of such sisterhoods as that af St. John's Training Institution for hospitals, families, and the poor. We should be sorry, indeed, that any words of ours should have the effect of diminishing the numbers or the zeal of the "noble army" of nurses who are annually sent forth on their humane service from those institutions. But we must be allowed to suggest that, however well-qualified or well-intentioned a nurse may be, she will do harm both to herself and to the object of her care, if she acts beyond her proper sphere, or if she exceeds the duties prescribed to her by the terms of her engagement. Every physician knows how embarrassing it often is to have to check the well-meant but mischievous officiousness of a female attendant on the sick; how ungracious it seems for him to protect his patient from the kindly, but misplaced offices of a faithful but self-willed nurse. We have now to complain of a hardly less prejudical excess of duty on the part of certain of our hospital nurses. There has been exhibited a tendency of late, on the part of the nurse, to use her opportunity for the purpose of proselytising; and, not content with ministering to the wants of the patient's body, she has shown a desire to undertake the spiritual charge of his soul. The practice is in itself a mischievous one, not only for every inmate or attendant of the institution, but even for the institution itself. It accustoms the nurse to look upon her proper function as one which she may exceed at pleasure. It tempts her to encroach not only on the department of the physician or surgeon in attendance, but also on that of the hospital chaplain. In attempting both tasks she performs neither; and, finally, she alienates that particular hospital to which she is attached from the charitable support of many of the public. At no time disposed to err on the side of liberality, the public would have a too plausible excuse for discontinuing its contributions to the hospital funds, if it had the power to say that the institution was simply a utensil in the hands of the ritualist propaganda. The proselytising efforts of the nurses must, therefore, be stopped at once. Recent changes, we are glad to note, will materially tend to prevent the growth of a practice which we cannot too strongly condemn.

# Medical Annotations.

"Ne quid nimis."

### CAST-IRON STOVES A CAUSE OF DISEASE.

When the attention of the Academy of Sciences of Paris was drawn some time since by M. Carret, one of the physicians of the Hotel Dieu of Chamberry, in several papers, to the possible evil consequences of the use of cast-iron stoves, but little interest was excited in the matter. Recently General Morin has again brought the subject forward with better success. M. Carret does not hesitate to assert most postively that cast-iron stoves are sources of danger to those who habitually employ them. During an epidemic which recently prevailed in Savoy, but upon which M. Carret does not furnish us with any detailed information, he observed that all the inhabitants who were affected with it made use of cast-iron stoves, which had been lately imported into the country, whereas all those who employed other modes of firing, or other sorts of stoves, were left untouched by the disease. An epidemic of typhoid fever, which broke out some time after at the Lyceum of Chamberry, was regarded by the same author as being influenced by a large cast-iron stove in the children's domitory. General Morin speaks in the highest terms of M. Carret's memoirs, to which the recent experiments of MM. Trost and

Deville give additional importance. These able investigators have established that iron and cast-iron when heated to a certain degree become pervious to the passage of gas. They have been enabled to state the quantity of oxide of carbon which may, as they suppose, transude from a given surface of metal, and have shown that the air which surrounds a stove of cast-iron is saturated with hydrogen and oxide of carbon. They conclude that cast-iron stoves when sufficiently heated absorb oxygen, and give issue to carbonic acid. General Morin related some comparative experiments which had been performed by M. Carret, and which, he said, corroborate this theory. Thus, after having remained during one full hour in a room heated to 40° (centigrade) by means of a sheet-iron stove, M. Carret perspired abundantly, got a good appetite, but felt no sickness whatever; he had obtained the same result with an earthernware stove; but the experiment when performed during only one half hour with a cast-iron stove, had brought on intense headache and sickness. M. Deville, at the same sitting of the Academy, supported these views with considerable warmth. The danger which attended the use of cast-iron stoves, he said, was enormous and truly formidable. In his lecture-room at the Sorbonne he had placed two electric bells, which were set in motion as soon as hydrogen or oxide of carbon was diffused in the room. Well, during his last lecture the two cast-iron stoves had scarcely been lit when the bells began to ring.

These facts are certainly startling, if we consider the reputation of comparative harmlessness which these articles of domestic use had hitherto enjoyed. In France, particularly, the lodgings of the poorer classes, the barrack-rooms of the soldiery, the artists' studios, the class-rooms of large schools, &c., are commonly heated by this means. Of course, we are inclined to question M. Carret's conclusions; but the apparently accurate character of the facts recorded, joined to the authority of those who have brought them forward, demand for them a serious investigation. We are glad to be able to add that a committee has been appointed by the Academy for the purpose of examining thoroughly into the subject. This committee is composed of MM. Claude Bernard, Morin, Frémy, Deville, and Bussy, and we shall not fail, when the time comes, to mention what shall have been the results of their researches.

### A NEEDLESS FATE.

Have our readers ever reflected on the courage required in the ballet-dancer's profession? The risks she runs are hardly less frequent and far more formidable than those which the soldier of the line or the man-of-war's-man gets so much credit for facing. It is one thing to take your chance of being sabred or hit by a bullet; but it is another and (to our mind) a much more terrible ordeal to piroutte in combustible gauze before the foot-lights, or, worse still, to be pinioned to an iron niche in some brilliant transformation scene and to remain immovably fixed to your precarious perch, amid a blaze of light and within leap of the flames from a thousand burners. Yet this is the experience which myriads of poor girls have to encounter, night after night, that juveniles may be entertained and gawky crowds amused. A girl of this ill-starred profession whose skirts caught fire at a concert hall in Birmingham on the evening of Friday, the 20th inst., died on the morning of Monday following,—adding another to the hecatomb of such victims yearly sacrificed to a frivolous and callous public. Is Parliment never to legislate against the use of inflammable raiment? Is humanity always to be murmuring, *Quousque tandem?* Till the State interfere, and compel managers of theatres and proprietors of music halls to protect their *employées* of the ballet by the precautions which chemistry furnishes against fire, we shall continue to be horrified by such instances as that just annouced from Birmingham, and to regard our places of scenic amusement as fraught with deaths of greater torture than those of the bull of Phalaris.

### THE MANUFACTURE OF DOCTORS.

The "manufacture of doctors" (as the phrase goes across the Atlantic) is exciting a considerable share of attention among thoughtful members of the profession in the United States. The American Medical Association have had the subject recently under consideration; and the *Humboldt Medical Archives* contains the abstract of an excellent paper on the Elevation of Medical Education, by Dr. Wm. Mason Turner of Philadelphia. Competing colleges and examining boards have in many instances so lowered the character of medical education in the States as to reflect much discredit upon it. "The fault," writes Dr. Turner, "is partly that of the colleges, and partly that of the public. The public at large are satisfied with too low a standard; college authorities do not exact one sufficiently high. The colleges are, however, chiefly to blame......The officers in our institutions of learning should be such in point of abilities as to know, long in advance of the public, what reforms are needed, to what extent, and in what direction." The first step of a sound reform is secured when its necessity is fully comprehended.

### "THE COMMERCIAL TRAVELLER'S TONGUE."

As we fully expected, the unfortunate phrase employed by Mr. Nunneley, at a recent trial, to describe the tongue of drunkards, has roused the indignation of the "commercials". The impropriety of thus reflecting upon a large body of respectable men, who, whatever may have been the case in past times, are now by no means an exceptionally intemperate class, is obvious. But the worst of the matter is, that there is really no distinctive drunkard's tongue at all. In the article on Alcoholism in the recently published volume of "Reynolds's System of Medicine," it is distinctly stated that "the tongue" in chronic alcoholism "may be in nearly any state, from perfect cleanness and moisture to dry, red glaziness or thick yellow furring." And, on the other hand, it is notorious that among dyspeptics of various grades, who have never been the least intemperate in drink, all the above varieties of altered tongue may be found. It is remarkable that Mr. Nunneley, while basing such a hazardous diagnosis on the state of a man's *tongue*, should have mentioned nothing about the *breath.* For although the tongue is never an infallible guide, there really is a peculiar but indescribable smell of the breath, which, if present, we believe is unmistakable evidence of the existence of regular drinking habits; and which is rarely absent when intemperance has been so long continued as seriously to affect the constitution.

# Analytical Records.

### MOUTARDE EN FEUILLES DE RIGOLLOT.

Although the preparation of an ordinary mustard poultice is not a very troublesome proceeding, yet it is sufficiently so in many cases to deter invalids from having recourse in the slighter ailments to this the most useful of all mild external applications. Add to the trouble the uncertainty of the action of a mustard poultice from the inferior quality of the mustard frequently used, and then it will be widely acknowledged that if any means can be devised whereby some of the trouble and uncertainty are lessened a desirable object will have been attained. Some proposed substitutes for a mustard poultice are not to be relied upon, since their activity depends mainly upon capsicum and not the active principles of mustard-seed; but in the mustard-leaves of M. de Rigollot we have, it is believed, a reliable and very ready means of obtaining the epispastic effects of mustard. These leaves are so smooth and flexible on the outside as to convey the notion that the material entering into their composition consists of leather. This is not the case however; while the interior of the leaves is covered with a thickish layer of a material which on analysis, by the microscope, and by the taste, one has no difficulty in declaring to be the flour of black mustard-seed, with a considerable proportion of husk. The agent is M. Menier, Henrietta-street, Covent-garden.

### THE BROMO-IODINE WATER OF THE WOODHALL SPA, LINCOLNSHIRE.

It is probably unknown to many of our readers that midway between Boston and Lincoln there exists one of the most valuable and remarkable spas to be found, not merely in Great Britain, but in Europe—namely, the Woodhall Bromo-iodine Spa. It is one of the very few spas in this country which contain in any medicinal quantity those potent and most beneficial agents, bromine and iodine. Amongst the continental mineral waters, it most closely resembles that of the celebrated Kreuznach Spa, to which invalids of a certain class resort from nearly all parts of the world. It differs from and is superior to the water of that spa in the very much larger quantities of bromine and iodine present in the former, and which are stated to be some three or four times as great.

The water of the Woodhall Spa has been more than once very carefully tested, and, as there can be no doubt of the substantial accuracy of the analysis made, we have thought it unnecessary to make a full quantitative examination; we have, however, verified the presence of bromine and iodine in large amounts. The late Mr. West, who very carefully tested this water, stated that the presence of iodine might be detected with the starch and sulphuric acid test, without the water undergoing any preliminary evaporation.

In the bromo-iodine water of the Woodhall Spa we have therefore a very powerful remedial agent, especially valuable in the very large class of cases of scrofula and chronic rheumatism, tumours, &c.

### BICHLORIDE OF METHYLENE.

A specimen of this new anæsthetic has been forwarded to us by the makers, Messrs. Robbins and Co., of 372, Oxford-street. The fluid has a rather sweeter odor than chloroform, and is very pleasant to inhale. It differs from chloroform in chemical composition, containing one more atom of hydrogen, and one atom less of chlorine. Thus the composition of chloroform is $H Cl_3$, and of bichloride of methylene $H_2 Cl_2$. The specific gravity of the vapor of the bichloride is consequently less than that of chloroform, being as 42·50 against 59·75, hydrogen standing as unity. The vapor of the bichloride burns in air, in which respect it differs from that of chloroform, but resembles that of ether. There is a further resemblance in physical property between the bichloride and ether in the boiling point, the difference being not more than .° Fahr., and both having a boiling point not less than 50° below the boiling point of chloroform. It was from these physical qualities that Dr. Richard introduced bichloride into practice as a general anæsthetic. He has shown that it acts with great perfection; and on theoretical grounds, subject always to experience, he thinks it safer than chloroform, an opinion which has been substantiated by Mr. Peter Marshall and others, who have repeatedly administered both these anæsthetics. The great obstacle to the general introduction of the new agent has been its high price; but, as the manufacture has proceeded, this difficulty is now so far met that the original price has been reduced to one-half. It is still more expensive than chloroform; but if it be safer, this objection of cost will not materially influence, we should hope, its general introduction. Bichloride of methylene may also be prescribed for internal use as an antispasmodic and narcotic; the dose is from ten to thirty minims with dilute spirit.

### TAYLOR'S PATENT FLAX-LINT.

We have inspected a specimen of this lint, manufactured at the Trent Valley Mill. It appears to us to be a good, strong article, applicable to all ordinary surgical purposes.

# Foreign Gleanings.

### M. BROCA'S ODONTOMES.

This distinguished surgeon and physiologist has just elucidated the pathology of the follicles of the teeth, the normal evolution of which had already been described in works on histology. M. Broca does not think that the deviations from this normal evolution give rise to peculiar products, but only to tumours made up of the general hypertrophy of the dental substance. These tumours, to which the author gives the name of "odontomes," present two forms: some always remain in the state of more or less soft tumours; whilst others, either wholly or in part, assume the hardness of teeth, producing shapeless, irregular dental masses, sometimes growing to a very large size. In fact, any tumour formed from one or more of the substances entering into the formation of a tooth, is due to the dentification of a soft tumour of the same form and volume which originally contained only hypertrophied odontogenic tissues. This hypertrophied tumour stands in the same connexion, with regard to the dentified tumour, as the normal dental bulb does to the healthy tooth.

### THE TREATMENT OF BUBO.

Authors often talk of the treatment of bubo without specifying the kind they mean: the simply inflammatory; the scrofulous; the bubo from absorption of soft chancre; the accidental inflammation and suppuration of the inguinal glands connected with hard chancre; the occasional enlargement of lymphatic glands in secondary syphilis, when the hard chancre has been long healed, and the first outburst of secondary symptoms has subsided. In the absence of such specification, the line of treatment advised can hardly be conscientiously tried. Even the eminent syphilographer, Diday, in his *Gaz. Méd.* of Lyons, quotes M. Danieli, who, in an Italian Journal, recommends, when the bubo fluctuates (what kind of bubo?), a small opening, the evacuation of the matter, and the injection of a solution of sulphate of copper (one part of the salt to a hundred of water). The bubo is to be well kneaded, and the injection to be repeated after twenty-four hours. In a week all is well.

Let this be tried by all means. But will a *chancrous* bubo heal in a week simply by coming in contact with a solution of sulphate of copper? Does an actual chancre heal in so short a time with *any* solution? Occlusion will, perhaps, do something. But kneading will cause inflammation, and inflammation does not subside in a week, even with simple hydrocele, treated by injections of iodine. And what about burrowing? A good free incision holds out, after all, the best hopes, when the subsequent dressings are appropriate, and the patient's general health tolerable.

### THE CONTAGIOUSNESS OF PHTHISIS PULMONALIS.

M. Fonssagrives, Professor of Hygiene at the Faculty of Montpellier, gives excellent reasons, in an article published in the *Gazette Hebdomadaire* (Jan. 10th, 1868), for considering phthisis somewhat contagious. He cites several striking examples of the disease being brought into families by newcomers, and dwells especially on the dangers of conjugal intimacy. As this contagiousness is not thoroughly ascertained, M. Fonssagrives proposes the issue of questions to medical men similar in form to those Mr. Simon, medical officer to the Privy Council, used for small-pox. As to any neglect to which patients might thus be exposed, the author maintains that the victims of phthisis are carefully nursed even in those countries where contagiousness is the general belief. The author thinks that special hospitals for consumption, as existing in England, tend to frighten patients, the latter being convinced of the incurability of the disease. We consider that herein M. Fonssagrives is mistaken.

### INTRA-UTERINE INJECTIONS.

M. Avrard (of La Rochelle, France) lately came to Paris in order to read a paper before the Academy of Medicine on these injections. He uses a double-current apparatus, and thus obviates the objection that fluids after injection may remain stagnant in the uterus. The late Dr. Aram was in the habit of using these injections, and, as he used unstimulating liquids, and injected very gently, never saw unpleasant symptoms. Dr. Marion Sims, before injecting, dilates the inner os with sponge-tent. Much must depend on the more or less concentration of the solutions used. It would appear that, with care, a penetration of the injected fluid into the peritoneum is not to be apprehended. It would be interesting to hear the experience of British gynecologists on these injections.

### EXPERIMENTS WITH BROMIDE OF POTASSIUM.

Messrs. Damourette and Peloet, of Paris, have largely experimented with this salt upon animals, and find that, by its anæsthetic and amyosthenic properties, it acts on general nervous affections, such as epilepsy, chorea, and hysteria; also, on the local varieties of nervous complaints, as dysphagia, asthma, whooping-cough, spasmodic dysuria, spermatorrhœa, palpitations, &c.; and, finally, on isolated pathological states, such as pain in headache, neuralgia, rheumatism, &c. The sedative action of the bromide on the whole capillary circulation causes it to control hyperæmia, whatever its nature and seat, as well in meningitis, inflammations of the eye, uterine, rheumatic, and gouty phlogosis, as in cynanche, coryza, bronchitis, cystitis, urethritis, skin diseases, and perhaps scrofula and syphilis.

### DISINFECTANTS.

M. Bonjean, an eminent pharmacien of Chambéry (Savory), has published a book on the means of preventing cholera, &c. Of course, his system rests on the use of disinfectants, among which he mentions: charcoal, well pounded, two pounds; sulphate of iron, one pound. Two or three tablespoonfuls should be placed in the night vessels used by the sick. The author contends not only that carbolic acid is overrated, but that its virtues are *nil*. This should be noted. Be this as it may, it is perfectly true that fashion and crying-up have an enormous deal to do with the use of disinfectants. We should not, immediately a new one is proposed, forget chloride of zinc, manganate of potash, charcoal, and green vitriol.

### RAW MEAT IN VARIOUS COMPLAINTS.

The use of raw meat in debility and phthisis is in the ascendant in France; but nothing will go down with the French unless the shape and taste be made pleasant. Thus they now have what is called musculine tablets, made of raw fillet of beef, and covered with fruit-jelly and candied sugar. Is it not better to give the raw meat in small rounded masses like boluses?

### MICROPHYTES AND MICROZOA.

Among the researches brought before the Academy of Sciences of Paris, a series of the highest interest, undertaken by M. Lemaire, should be mentioned. This ingenious investigator has found, by carefully conducted experiments in barracks, the open air, and upon people in good health, that upon the body, or from its emanations, microscopic beings may be collected, the existence of which will considerably assist those who study parasites. The microscopic world bids fair, if further experiments verify those of M. Lemaire, to play a very important part in the elucidation of the genesis of diseases.

### RESUSCITATION OF THE DROWNED.

The Marshall Hall and Silvester methods have rendered signal services. Here is another, lately proposed by M. Marchant (of Charenton), in the *Archives de Médecine*, especially in view of asphyxia after immersion. The author thinks that the best means of success is to pay little attention to circulation, but to bestow much on respiration, by which hæmatosis of the blood is restored. Pulmonary insufflation is to be performed in the following manner:—A tube of any kind, even of a tobacco-pipe, well washed, should be introduced into a nostril, and both nostrils, be pressed against the tube. The mouth should be stopped by the operator's hand, and he should then blow with sufficient force into the tube to drive air into the lungs. The chest then is seen to rise. By removing the tube, and the hand from the mouth, expiration will spontaneously take place, or it may be aided by the open hand applied to the base of the thorax. This manœuvre being repeated ten or twelve times, the heart is felt to beat, if the patient had, at the beginning of the operation, any vitality in him.

### STOMATITIS FROM FRICTIONS WITH CITRINE OINTMENT.

It is well known that citrine ointment contains about one-tenth of mercury to one of fatty matter; yet it was lately shown, says the *Journal des Connais. Méd. Chir.*, that three frictions with it can give rise to very severe salivation. This was the case with a lady, who, not fancying sulphur ointment for the removal of itch, rubbed in citrine ointment by the advice of a chemist. The gums swelled after the second friction, and the most distressing symptoms of stomatitis set in after the third. We would, however, remark that very probably the frictions were made over a large surface, and that much of the ointment must have been used.

### THE BENEFICIAL EFFECTS OF MERCURY.

M. Fleury states, in the *Gazette des Hôpitaux*, that a man, wounded in the leg by a piece of stone, came to him, a year afterwards, with ulcerations which covered the lower half of the left leg. These sores, which all communicated by cutaneous bridges, had defied all the applications which had been tried. M. Fleury, by cross-examining, elucidated a history of syphilis, gave the patient mercury, used appropriate local applications, and the leg was quite well in four months.

### GANGRENE OF THE PENIS BY CONSTRICTION.

M. Guibout lately brought before the Medical Society of the Hospitals of Paris the case of a man, fifty years old, who had passed no less than seven iron rings over his penis towards the pubes. These strong resisting rings caused severe constriction, followed by all the symptoms of apparent gangrene of the part. M. Guibout called in M. Richard, a hospital surgeon, who tried in vain with ordinary pliers to cut one of the rings. Recourse was then had to an obliging watchmaker of the neighborhood, who succeeded in dividing two of the rings with a clockmaker's saw. He could, however, proceed no further, as he had already broken six or seven of his saws. M. Matthieu, the skilful surgical instrument maker, had been sent for in the meanwhile; and, with the most powerful pincers, saws, and pliers, he succeeded in dividing, one after another, the five remaining rings. By means of warm applications and appropriate measures the gangrenous inflammation was arrested, and the organ escaped destruction. No questions were asked, as the patient, after a few words of explanation, was thoroughly ashamed of himself.

A case, under the care of the late Natalis Guillot, was also mentioned, where a gold wedding-ring was used in the same manner. The part was plunged in liquid mercury, which dissolved the ring.

## News Items, Medical Facts, &c.

Cambridge County Lunatic Asylum.—It is generally supposed that insanity is more prevalent in towns than in rural districts, but some of the purely agricultural counties figure badly in recent statistics, as appears from the following extract from the last report of the Cambridgeshire County Asylum. The superintendent, Dr. M. Bacon, after speaking of the diminution in population in the county, and the high ratio of the insane, says:—"The equable life of the humble laborer does not, then, apparently, exempt him from the penalties that attend a more ambitious career, and this is seen in the high position of some of the agricultural counties in the rate of insanity. Thus, Cambridgeshire stands thirteenth in the catalogue of fifty-four divisions of England, 1 in every 421 of its population being insane; and having, as its superiors in misfortune, Wilts, Hereford, Bucks, Oxford, Leicester, Berks, Dorset, Herts, &c. This shows, too, the close relation of poverty to the rate of insanity, for in those counties in which there are the most insane, in them the pauperism is greatest. Comparisons between individual counties can never be made very exact, because local circumstances have an unknown weight, but considerations such as the above may serve to show how the native insanity of a county is influenced by its material prosperity."

There are 21,000 deaf and dumb persons in this kingdom, and it is suggested by a warm advocate of their case that in any proposed scheme of national education they ought no longer to be neglected. Mr. Hammick in 1862 pleaded that a portion of the large grant of public money already set apart for the purposes of education might well be bestowed in this direction. Mr. Hammick, in advocating their claims, now states that in France most of the schools for them are assisted by the State, and are under the protection of the Minister of the Interior. And a law obtains there, as in Belgium, Austria, Prussia, and several other countries, making it compulsory to have every deaf and dumb child (if of sound intellect) educated at the public expense. In America, although education is perfectly voluntary, every possible encouragement is accorded to them by the Government, about 300,000 dollars, or £60,000 being liberally appropriated annually to the thirty-two schools for the deaf and dumb poor.—*Pall Mall Gazette.*

Royal Sea-bathing Infirmary.—The annual meeting was held in March at the offices, Queen-street, Cheapside. The report stated that during the last year 764 patients had been admitted into the infirmary, of whom 330 had been cured, 193 benefited, 71 improved, and 13 had died, leaving 157 in the infirmary at the beginning of this year. There had been also 130 out-patients, which made a total of 894 patients who had been under treatment in 1867. There were 250 beds in the infirmary, which was now in a far better condition than it had been in former years.

Society of Forensic Medicine of Paris.—This Society has been recently founded at Paris. By one of the rules a permanent committee is appointed to answer all inquiries respecting medico-legal matters. This is certainly burdening the Society with a very heavy task.

Dr. Wood, of Atlanta, in a paper in the "New Orleans Journal of Medicine," notes that the extraordinary prevalence of tapeworm since the war has been a subject of remark by members of the profession in his neighborhood.

Out of 6354 cases attending one of the dispensaries at New York, the birthplace of 3157 was the United States, 2627 Ireland, 164 Germany, 154 England, 252 other countaies.

It is reported that Victor Emanuel is seriously ill at Turin with an attack of apoplexy.

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# THE LANCET.

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# A Lecture

ON

# GASTRIC EPILEPSY.

*Delivered at Addenbrooke's Hospital, Cambridge.*

By G. E. Paget, M.D.,

Physician to the Hospital.

One of you asked me a few days ago whether the case of the older of those epileptic girls in Hatton ward (I mean Sarah H——) were a case of *gastric* epilepsy. It was a good practical question; it went at once to the most important point, that of treatment. The choice of treatment for the patient depends on our answer to that question. I will therefore take it as my text for saying something on the treatment of such cases, and on the general principles on which epilepsy should be treated.

There is one fact which you must never lose sight of in considering the treatment of epileptics—the fact that though they resemble one another in being subject to the like fits, they may differ widely from one another in other respects, and that this difference must be taken into account in devising the treatment.

The questions have at times been discussed, whether epilepsy be a sthenic disease or one of debility—whether it is associated with cerebral plethora or the reverse. In such discussions I should take neither side, because I am sure that I have seen some epileptics plethoric and others deficient in blood; I have seen some vigorous, athletic; others as remarkable for their weakliness. If you treat your epileptic patients indiscriminately with metallic tonics, you will find that some of them are benefited, and others made worse. In the present day venesection is scarcely ever employed in the treatment of epilepsy, but if you refer to the work on Nervous Diseases by the late Dr. Prichard you will find indisputable evidence of benefit derived from it. He treated many of his epileptic patients with repeated large bleedings, and under this treatment the fits in some of them became less and less frequent, and in a few cases seemed to cease altogether. A case from Portal will illustrate the same fact. An epileptic in one of his fits fell violently on his face, and caused so frightful a hæmorrhage from the nose that it was thought he would die from loss of blood. Before this he had had a fit once a month, or oftener. After it, he remained free from them for several months. The surgeon who attended him took this as a hint, and bled his patient at first once a month afterwards at intervals of three or six months, and then more rarely, and continued this treatment for a long time. The fits never returned.

You will understand that I do not wish to encourage you to treat epilepsy by venesection; I only desire to show that a mode of treatment which has been well-nigh exploded as a remedy for epilepsy has (there is strong reason for believing) proved truly remedial in *some* cases. I could give you further evidence from one or two that have fallen under my own observation, but they would be less striking than Portal's. Such cases are of course quite exceptional.

If you aim at curing epileptics, you must be at the pains to study each case individually. And you need not be surprised at this. Epilepsy is not the only disorder of the nervous system which is associated with different conditions of the rest of the body, or even with different conditions of the vascular system of the brain. You all know that delirium may occur in what appear to be different, or even opposite, conditions. It may be excited by alcohol, and may occur in a state so different as to be arrested by alcohol. Take another more definite, example of nervous disorder—the phenomenon of optical illusions. This is in some cases associated with plethora, and even seems to be caused by it, for it is relieved by venesection: but in other cases it is no less certainly associated with a deficient supply of blood to the brain, for it has occurred in fainting and in the weakness of old age. It may occur also in blood-poisoning, as in fevers and uræmia and under the influence of opium or Indian hemp.

So with epilepsy: it may occur in very different conditions, and therefore require very different kinds of treatment. You will understand that I am now speaking of the essential pathological condition of epileptic fits, of which we know so little, but of the general conditions which are practically cognisable.

You may ask, "If the treatment should be so different in different cases, can you give us no general rules for our guidance?" My answer would be, I can give you no *one* method of treating epilepsy, but some general principles may be laid down, and these we can gather from a consideration of its causes. Our knowledge of its causes is indeed limited, but whatever obscurity there may be about its *proximate* cause, we do possess some trustworthy evidence as to its remote causes.

One of these is a constitutional state, which predisposes to the fits, and may be congenital. It has been called the epileptic diathesis. If you ask me to define more exactly this epileptic diathesis, I must tell you that is more than I can do. Then you may reasonably demand what evidence there is of this costitutional state, of which so little is known that it cannot be defined. Well, there is sufficient evidence in the fact, that two or more cases of epilepsy are sometimes observed in members of the same family, and that this happens far more frequently than it would do as a mere accidental coincidence, and it is observed under circumstances which forbid our attributing it to a common *external* cause. I could give you many instances that have come under my own notice. At the present time two epileptic sisters are among my out-patients; a short time ago there was an epileptic child in Hatton ward, whose mother had been epileptic for some years until the birth of this child, at which time her epileptic attacks ceased; I have a private epileptic patient at this time, whose son died of epilepsy, the disease in the mother not beginning until after the death of the son; I have notes of several examples of epilepsy in brother and sister. Now this predisposition of two persons to a common disease can only arise out of some defects or peculiarities in which they resemble each other; and these points of resemblance, whatever they be, involve the essence of epileptic diathesis. We can only conjecture what this essence may be. As epilepsy is manifested by a disorder of the nervous system, we may resonably surmise that the diathesis is associated with some abnormity in that system. Many years ago I fancied that it was connected with congenital abnormities in the structure of the brain or its bloodvessels; for in several cases of fatal epilepsy I had noticed irregularities in the cerebral arteries or in parts of the brain itself, but in other cases I have looked in vain for such abnormities. We cannot even be *sure* that the essence of the epileptic diathesis resides in the nervous system; in albuminuria we may have epileptiform fits, and a state of disease which at least resembles genuine epilepsy, yet the essential cause here is in the poisoned blood, and the epilepsy, may be cured if we cure the albuminuria. But whatever be the essential nature of the epileptic diathesis, it is certain that there is such a condition, or group of conditions, and that it is one of the efficient causes of epilepsy. Its influence doubtless varies greatly in different cases.

There is another cause of epilepsy, which is, or at least appears to be, of a different nature. In many cases we may observe the fits to be excited by some local irritation. In some cases a local irritation seems the cause both of the origin and continuance of the disease. In one, published by Dr. Greenhow, a girl had run a splinter of wood the distance of an inch underneath her left thumbnail. Much pain and irritation ensued, and at the end of a week she had an epileptic fit. She had four more fits at irregular intervals in the next four months. The wound remained open, and painful on pressure. The fits were preceded by a sense of numbness in the thumb, rapidly extending up to the shoulder. They were complete epileptic fits: the tongue was usually bitten, and she fell asleep after them. She had not suffered from convulsions while teething, and was not subject to hysteria. Dr. Greenhow ordered the thumb to be poulticed; and for medicine gave solution of perchloride of mercury and tincture of cinchona, of each one drachm and a half thrice daily. Nine days afterwards a sixth fit occurred. The wound was now healing, and soon after healed. The sixth fit was the last. Four months afterwards the patient remained well.

The late Dr. Baly published a case of epilepsy occasioned by irritation in the socket of a tooth. The patient was a stout man, aged forty-five. The first symptom of spasm had been twitchings of the cheek, ending in his jaw becoming locked. Subsequently these symptoms were the precursors of a fit of violent epileptic convulsions, the right side (that on which the tooth was affected) being more convulsed than the left. The convulsions always began in the cheek, and extended gradually over other parts of the body. When the jaw and gum were healed the epileptic fits ceased.

Even more striking is a case which occurred to Portal, and is given in his work "On Epilepsy." A man had been wounded in the forepart of the neck and upper part of the chest with small shot discharged from a pistol. Some shot were removed from his neck by slight incisions, and his health remained good for nearly six weeks; after which he had numerous attacks of convulsions, with loss of consciousness. These were continuing many years afterwards, when he consulted Portal. Portal's prescriptions were in vain; but some time afterwards an abscess formed on the side of the neck near the shoulder, and, on its opening, a grain of shot was discharged from it. From that moment the man was free from his epileptic fits.

In a similar case given by Portal the patient was a soldier, and his epileptic fits were preceded by sharp pain in his thigh, where he had once been shot. Lamorier, a surgeon of Montpelier, made an incision into the part, and removed two or three grains of shot, and the patient was thereupon cured.

Cases of this kind are to me so practically significant that I will tell you still another, published by Portal on the authority of Fizes, a professor of Montpelier. A soldier had been subject to epilepsy from the time he had received a wound from the point of a sword in the corner of his eye. The fits were ushered in with pain in this spot. Fizes directed that a careful examination of the part should be made by a surgeon. On examination a minute spot was found, which was hard and painful; and the surgeon, cutting down into this, removed from it the little point of the sword with which the soldier had been wounded. From that time the man was radically cured.

I have cited these five very similar cases because they indicate so plainly what I wish to impress upon you. In these cases a local irritation was the exciting cause of the epilepsy, and seems even to have been its sole cause. It must, at all events, have been the main cause; for, on its removal, the fits ceased. If there were any other concurring cause, it must have been slight. If these five patients had the epileptic diathesis, they could have had it only in a very low degree; otherwise, the removal of the local irritation could not have accomplished an immediate arrest of the disease. These cases, therefore, teach us that epilepsy may originate in a mere local irritation in some part of the body, and that it may be kept up by the continuance of such irritation. This latter point is of the highest practical importance. It teaches us to search out in every case of epilepsy for evidences of local irritation or disturbance, and thus to discover the exciting cause of the recurrence of the fits. It may or may not have been the *original* cause. The epilepsy may, for example, have been originally caused by fright; but its continuance may be due to some local bodily excitement or disturbance. The local irritation may of course be on the surface of the body, or in an internal organ.

In the treatment of a case of epilepsy it is therefore of the utmost importance to examine into all the functions, with the view of discovering whether disorder in any one or more of them be precursory of the fits. If we can discover this, and can succeed in correcting the local disorder, we may stand some chance of preventing the fits. We must not, however, reckon on the good fortune that attended the five cases I have narrated. The local disturbance is more commonly seated in an *internal* organ, and cannot be so completely and finally removed; and even if it be, our patient may have the epileptic diathesis, which acts as a predisposing cause; and if he have not this diathesis congenitally, yet it is a fact unhappily too well established, that, when a person has been for some time epileptic, the fits may be renewed by occasional causes far slighter than that to which they owed their origin. It is well known that such a person may be thrown into a fit by a cause which would not have sufficed to produce any ill effects whatever before he became epileptic.

These immediate occasioning causes, which it is our duty to search for, are by no means always obvious. They may be only slight functional disorders difficult to discover.

In no organ is the immediate exciting cause of epileptic fits more frequently found than in the stomach. Indeed, a gastric disorder may even have been the original exciting cause—the cause of the patient's becoming epileptic. This was the case with an hospital patient of mine named George D——. In his early boyhood his head had been injured by the kick of a horse, and he may thus have acquired some predisposition to the disease, but no symptom of it appeared until one day, when he was fifteen years old, he ate an enormous number of cherries, including many of the stones. An epileptic fit was the consequence. Similar fits followed, at first at intervals of a few months, then of one month, and then more frequently. They were preceded by an aura from epigastre to head. He was extraordinarily athletic, but was obliged to give up his occupation as a whitesmith, and at the age of twenty-four was found drowned in a shallow ditch on Midsummer-common, into which he had fallen doubtless in a fit.

In epilepsy once established, whatever may have been its exciting cause, gastric disorder may in the course of the case, become the ordinary excititing cause of the fits. You may satisfy yourselves of this by watching such cases, and carefully inquiring into the circumstances of each fit as it occurs. You may find, perhaps, (as in George D——'s case,) that an aura passing from the region of the stomach to the head is immedately precursory to the fits; or that there are other symptoms premonitory of a fit, and that these are plainly gastric, and may be relieved by gastric remedies, and that when they are so relieved the threatened fit is averted.

Of course in the great majority of cases there must be some other concurring cause besides the gastric disorder. There may be a congenital epileptic diathesis, or that proneness to fits which seems to be generated by previous attacks. It is certain that in most cases there must be some such predisposing cause, for the gastric disorder which immediately excites the fits may be no more than hundreds of dyspeptic persons are frequently undergoing without falling into fits. But if the predisposition be not strong, we may go a long way towards curing our patient by such watchful attention as to prevent again and again the recurrence of the fits.

In proof of this I can give you many cases in which epileptic patients were greatly benefited, or even permanently cured, by remedying their gastric symptoms, although little besides was done for the correction of a presumed epileptic diathesis.

In August, 1852, I was consulted by Mrs. W——, the wife of a man of business. She complained of epileptic fits, which were nocturnal, coming on in her sleep. The first had occurred three years before, at a time when she was pregnant with her second child; the next after twenty months, and then they had recurred with increasing frequency, and of late as often as once a month. The last of them had happened a fortnight before I was consulted. All of them had come on about three or four A.M., and all had been severe fits, leaving after them a languor, lassitude and confusion of mind of some days' duration. On particular inquiry I ascertained that the day before each fit she had had some slight disorder of her health, apparently of the stomach. On the last occasion she had experienced a faintness and nausea after breakfast, and had, moreover, dined off salmon and veal. She was in the habit of eating heartily, and of taking a glass of porter at dinner and at supper. With the exceptions mentioned her health seemed good. In her childhood she had been in the habit of sleep-walking.

I prescribed moderation in eating, and abstinence from all indigestible food and from all fermented liquors. For medicines, I ordered three grains of valerianate of zinc to be taken thrice daily; and a draught of gentian mixture with senna, eleven fluid drachms, and compound tincture of rhubarb, one fluid drachm, to be taken on the occurrence of any of the symptoms which had commonly preceded a fit.

I know not exactly how long the medicine was continued, but the rest of the advice was honestly and persistently followed. The result is, that to this day she has never had another fit, though she has been much tried by domestic misfortunes, including the insanity and death of her husband. This result is the more remarkable because the sleep-walking in her youth showed a nervous constitution, which is also indicated by the fact that two of her brothers subsequently suffered from delirium tremens, though the habits of one of them were not in a marked degree intemperate.

In 1860 I attended with Mr. Carter a boy, eleven years old, who had had eight fits. The first had occurred when he was two years and a half old; the last, three weeks before I was consulted. On this last occasion he had had two fits within twenty-four hours, and since then he had been restless at night, grinding his teeth, twitching or tossing his arms about, talking in his sleep, or starting up in bed in a state of unconsciousness, with open, set eyes. On one occasion his mind wandered on his awaking. Though of gentle disposition, he had become irritable in temper, yet complained of nothing, and declared himself quite well. He was not aware that he had had fits. There was some little hereditary predisposition, for his maternal grandfather had been epileptic, and had died in a fit. But what was practically of more importance was, that his stomach and bowels had been out of order on the occasions of his fits, and had long been so at the time I was consulted, notwithstanding judicious treatment. He was pale and not robust. His alvine evacuations were almost always unhealthy, and generally contained undigested food. On one day he was seized with twitching of the face just as his bowels were about to be relieved under the influence of an ounce of compound decoction of aloes; and the nocturnal restlessness was more particularly noticed whenever his bowels were confined. They were constantly torpid. To restore their healthy action and correct their secretions, and to enable him to digest his food, cost us some time and no little trouble, but when this was effected the other disorders ceased, and he appeared well. At the end of four months came a relapse. In one night, during sleep, he had two more well-marked epileptic fits. After them he vomited large lumps of beef, undigested and unmasticated which had been "bolted" at dinner, and lumps also of beef-pudding which had been eaten cold at breakfast, eighteen hours before. The cause of his relapse was so manifest that it served as a warning for unceasing attention to the rules of diet which had been prescribed. Since then—seven years ago—he has had no more fits, has been able to rough it at a public school, and has grown into an active and intelligent young man.

Now what were the remedies in this case? Well, he took very little of reputed remedies for epilepsy. He did indeed for some nights take a quarter of a grain of extract of belladonna, and for some days he tried oxide of zinc, and at another time sulphate of zinc in small doses; but these measures were soon abandoned, because they seemed rather hurtful than beneficial. The medicines that were of service were such as helped to correct the unhealthy state of the alimentary canal—such as would have been used if there had been no epilepsy at all; but still more serviceable, as I think, were, regulation of his diet, the use of an artificial masticator, and much riding exercise on a pony.

Cases more or less resembling this are not uncommon. Here is another. A boy thirteen years old, intelligent, soft-hearted, with pale complexion, large head, and lofty expanded forehead, had been subject for two years to sudden seizures, in which he involuntarily nodded his head twice or thrice, and was for the moment unconscious. These attacks had been regarded by his friends as of too little importance to require medical advice. In April, 1858, he went from home on a visit to some friends who were confectioners. Here he enjoyed for some days a heterogeneous unwholesome diet, and then one day dined off a pork-pie. After dinner he was leaning forward over a table reading a book, when suddenly he fell to the ground unconscious, in an epileptic fit. I advised great and habitual care in his diet, cold sponging of the head, and a regimen adapted to strengthening his general health. I also prescribed oxide of zinc twice a day, in doses of two grains, afterwards increased to three. Under this treatment the nodding attacks became less frequent, and the more complete fits did not return for more than twelve months. Then he had another epileptic fit, which was attributed to his eating a quantity of unripe fruit, and so served to renew the vigilance of his friends and their attention to his diet. That was in 1859, and was his last fit. He has now for many years been free also from the nodding seizures. The oxide of zinc was given only in 1858, and was not long continued: it probably had little to do with the favorable result.

Notice the nodding attacks in this case. Though little was thought of them, they were assuredly epileptic. The loss of consciousness attending them makes this certain. It is not uncommon for attacks of a slight kind thus to precede by many months, or even some years, the first ordinary violent epileptic fit. You must bear this in mind, and be ready to recognise the true nature of such minor attacks; for the longer their continuance, the more difficult is the cure.

In the following case, also, these minor attacks were a prominent feature:—

W. E——, aged fourteen, a study country-boy from Little Eversden, was admitted into the hospital on September 4th, 1861. For four months he had been subject to nocturnal attacks, in which he started up in bed, threw his arms about, and struggled in an unconscious state; but, soon recovering his consciousness, lay down and fell asleep again. Recently these attacks had become so frequent that his mother had sat all night at his bedside, and the seizures recurred, she said, every five minutes. Similar seizures occurred after his admission into the hospital; but their number rarely exceeded eight in a night. Nearly all of his attacks were of this kind; but there was a wound on the border of his tongue from a bite received in a fit three days before his admission, and when he had been two days in the hospital he had in the daytime an ordinary epileptic fit, in which he frothed at the mouth, and was quite unconscious. He ground his teeth much during sleep; his appetite was keen; his tongue whitish. His mother attributed the recent aggravation of his malady to eating and drinking in the harvest-field. He had passed a few round worms. I regulated his diet, and forbad any eating after 6 P.M. I prescribed, in succession, opium at night, oil of turpentine with castor oil, and compound scammony powder, without benefit. Then I ordered one-fourth to one-third of a grain of extract of belladonna every night, and oxide of zinc in increasing doses, trying these two drugs both separately and simultaneously. Some benefit was perceptible; but it was not lasting.

On the 2nd of January, 1862, I changed his medicine to subnitrate of bismuth and magnesia, of each five grains; acacia powder, two grains: to be taken at 4 P.M., and bedtime. The attacks were immediately reduced to two or three per night, and became less violent. On Jan. 24th I ordered the powder to be given thrice a day. The improvement continued; and on Feb. 11th, for the first time, he passed a night without any attack. He remained wholly free from them until Feb 22nd, when he was made out-patient, and ordered to continue the powders.

As out-patient he had an attack now and then, but never more than one in a week, and in some weeks none. He went on thus until the next harvest-time, when the seizures again became frequent, recurring twice or thrice every nig' t, and he had also an ordinary epileptic fit in the day-time. He confessed to very free eating and drinking during the harvest. On Oct. 18th he had again improved, and after that he ceased his attendance and I lost sight of him.

Bismuth and magnesia have no repute as remedies for epilepsy, yet they were plainly beneficial in this case. Bismuth, indeed, I have often prescribed with advantage in gastric epilepsy. By correcting the disorder of the stomach, it may go far towards relieving the epilepsy. By the use of bismuth with magnesia, as in the case last narrated, I cured a case of severe epilepsy, which during two years had resisted a great variety of treatment, prescribed successfully by two other physicians and myself. I failed to recognise its gastric character until I learned that the patient (a robust agricultural laborer) almost every day hiccoughed twice or thrice about two hours after his dinner. This case was in other respects so remarkable that I was induced to publish it. Besides his regular epileptic fits, which were numerous and of the most severe kind, and even nearly fatal, the patient was troubled with sudden and transient attacks of involuntary and meaningless laughter, associated with no ludicrous ideas, and occurring frequently by night as well as by day, in sleep as well as awake. He was ultimately cured by bismuth and magnesia and after a period of seven years he is still remaining quite well.

The cases I have related are, I think, sufficient evidence not only that in certain cases of epilepsy the immediate exciting cause of the fits in the stomach, but that in some a cure can be effected by correcting the gastric disorder. This is what I wish you to bear well in mind. But I must not end here. If I did, I should leave a wrong impression on your minds. You cannot cure all cases of gastric epilepsy as these were cured. I have not given them to you as models of judicious treatment; far from it. You will meet with many cases in which such treatment will be found inadequate. The cases I have narrated prove the importance of treating the gastric symtoms when there are reasons for believing that the immediately exciting cause of the fits is in the stomach, but you must not expect that in all such cases this treatment alone will suffice to effect a cure.

In very many cases we have to take into account an epileptic diathesis, either congenital or acquired, in consequence of which the fits will recur, notwithstanding all our care in correcting the local exciting cause. We have then the additional task of removing or correcting this diathesis—this diathesis of the nature of which we know so little, of which we do not even know whether it be one state only, or whether, in our ignorance, we do not include under this one term several distinct and dissimilar states. How can we do this? No reasoning can help us here. Nevertheless, we are not entirely at a loss. Direct experience has taught us that certain drugs and certain kinds of regimen have some control over those states of the nervous system which predispose to epileptic fits. Oxide and valerianate of zinc have such power, and so have belladonna and bromide of potassium. These certainly exert an influence over epilepsy, an influence which we cannot doubt, though we know not their *modus operandi*. Direct experience has again and again proved their power when suitably used, not only in epilepsy, but in other affections of the nervous system.

In most cases of epilepsy we must direct our treatment to *two* ends—to remove the local irritation, and to correct the epileptic diathesis.

A man, named William M——, is now attending as out-patient, whom I have treated thus, and his case illustrates my remarks the more aptly because I have kept the two kinds of remedies distinct, having deferred the second until the first had accomplised its purpose. He is the son of a widow, living at Barton, and was sixteen years of age when admitted as an out-patient, in April, 1864. When well he worked as an agricultural laborer. He had been subject to epileptic fits for eight years, and had the stupid, half-imbecile look so frequently seen in epileptics, when, in an unfavorable progress of the disease, the brain has suffered much. His fits had generally recurred about twice a week; their epileptic character was well marked, and they were followed by deep sleep. He was in the habit of eating very heartily and fast, swallowing large mouthfuls, with very little mastication. There was evidence of some hereditary predisposition. I advised him to eat slowly and moderately; and for medicine, I prescribed three grains of subnitrate of bismuth and a sufficient quantity of extract of anthemis, to be taken in a pill thrice a day. This was continued till the end of the year, the fits becoming less frequent, and his stupid look gradually improving into one of ordinary intelligence. At the beginning of 1865 the fits did not recur more frequently than once in a fortnight. On Jan. 21st the dose of subnitrate of bismuth was increased to five grains, and on June 10th two grains and a half of magnesia were added to the bismuth. This last change does not seem to have been beneficial. On July 18th the medicine was changed to ten grains of bromide of potassium in camphor water twice daily. On Sept. 16th the dose of the bromide was increased to fifteen grains, and on Feb. 17th, 1866, to twenty grains. Until this last date the fits had continued to recur about once a fortnight, but were generally attributable to some infraction of the rules I had laid down for his diet. In one of these fits he fell into a fossil-pit, and received a severe hurt. Since the last increase in the dose of the bromide he has had only two fits, the last of which was in November, 1866. From that time to the present he has been wholly free from fits. He has become very robust, has good average intelligence, earns good wages in the laborious and constant work of fossil-digging, and supports his widowed mother. He is carefully moderate in eating, and takes no strong drink, except a very little beer.

In many cases the phenomena are more complicated than in those I have related, and if they be, our treatment must be adapted accordingly. The gastric symptoms may be the chief, but not the only symptoms to be considered in planning our treatment.

J. E——, aged eight years, son of a butcher at Ely, was admitted as an out-patient of our hospital on July 21st, 1855. He was well and sturdily built, but his head was rather large and his brows heavy. For the last five years he had been subject to fits, which had become more frequent of late. Sometimes more than one occurred in a week; the longest period of immunity had been three months. All the fits had been nocturnal, coming on in his sleep, generally about ten minutes after he had fallen into his first sleep; and were attended with complete insensibility, convulsions, lividity of face, frothing at the mouth, and biting of the tongue. After them he was very dull for a day or two, scarcely speaking. He had almost constant headache. His appetite was very hearty, but he took no supper. His tongue was furred at its base, his pulse regular, and no worms had been seen in his evacuations. He passed five hours and a half every day in school. He was ordered to discontinue the afternoon school, to eat less, to have cold water applied to his head thrice daily, and every night to have a hot foot-bath and to take ten minims of tincture of digitalis; also to have an issue in his arm, and to take a dose of castor oil once a week. Under this treatment he remained free from fits until Sept. 20th, when they returned. Two days afterwards he was admitted in-patient. While in the hospital he had repeated attacks of herpes labialis. He had a propensity to eat fast and largely. In November his nose bled on two consecutive days. I allowed him meat only thrice a week; on the other days he had pudding for dinner. He took occasional doses of magnesia with rhubarb; the hot foot-bath and digitalis were continued, and the issue kept open. The habit of eating fast was gradually corrected by the vigilance of the nurse. He was troubled with twitching and cramps, but remained free from fits, and on February 19th was discharged, with a caution to his friends to keep open the issue for a while, and continue the same plan of diet and regimen. Three years afterwards I heard that he had remained wholly free from the fits, and was perfectly well and strong.

In this case gastric disorder seems at least to have been one of the chief causes of the fits, and a regulation of the diet one of the chief remedies; but some of the symptoms indicate congestion of the head, and the employment of an issue in the arm leaves in doubt how much of the success was due to diet and regimen, and how much to the issue. We must sometimes be content to be thus left in doubt as to the relative value of the means we have used successfully. It is our first duty to cure our patients; and we have no right to refrain from the employment of remedies that are likely to aid them, though the simultaneous use of more remedies than one does inconveniently complicate our reasoning on the case.

The case of Sarah H——, which gave the hint for my lecture, is, however, not what I should call gastric epilepsy. It is, indeed, genuine epilepsy—some of the fits have come on in sleep, and the tongue has been bitten,—and she has some well-marked gastric symptoms; but these do not seem to be exciting causes of the fits. She suffers much from pain in the stomach; but this occurs very frequently without being followed by any epileptic symptom. She tells us that her first fit (which occurred eleven years ago), and also some of the subsequent fits, came on at, or just after, her dinner; but most of her fits have occurred at other and various times without any apparent connexion with her meals. There is no epileptic aura proceeding from her epigastrium, or other stomach symptom precursory or premonitory of her seizures. Therefore, although she has been benefited by the treatment, having been free from fits for more than six months, I think it at least doubtful whether this benefit had been derived from the gastric remedies. She has, as you are aware, taken also of bromide of potassium; and of late she has been, as in-patient, under more favorable circumstances than she probably was at home.

# Clinical Lecture

ON

# SIMPLE FRACTURE OF THE SHAFT OF THE FEMUR.

*Delivered at University College Hospital,*

By John Eric Erichsen, F.R.C.S.,

Senior Surgeon to, and Holme Professor of Clinical Surgery at University College Hospital.

I wish to say a few words to you to-day, gentlemen, on a class of cases of very common occurrence, and of great importance to the surgeon, perhaps the most important class of cases of frequent occurrence in hospital practice—namely, Simple Fractures of the Shaft of the thigh-bone. The importance of this class of injuries arises less perhaps, from their actual severity than from the length of time that the patient is confined to bed, and is prevented from working in consequence of the nature of the injury; and also on account of the great liability that there is in these cases for a certain amount of deformity to take place in the direction of shortening, notwithstanding every care on the part of the surgeon.

Now in these cases of fracture of the shaft of the femur—and what I am going to say refers to simple fracture of the femur,—in these cases you will find that there is a tendency to displacement of both fragments, the upper and the lower; and that both of these fragments may be displaced in two different directions. It is in order to obviate this displacement—to counteract it by mechanical means—that all our treatment is directed.

The *upper* fragment may be displaced in two different directions. It is always displaced in a direction *forwards;* it always has a tendency to be drawn or tilted up. It has also a tendency, however, either to be *everted* or to be *inverted*—more frequently everted than inverted. That is the direction of the displacements in the upper fragment.

The *lower* fragments has always a tendency to be drawn *upwards*, and it has a tendency also to be rotated *outwards*—as a general rule. That is the direction of the displacement in the lower fragment. So in the upper fragment you have a tilting forwards and a rotation outwards or inwards, as the case may be; in the lower fragment you have a dragging of the limb upwards, with a rotatory displacement outwards.

Now let us inquire for a few minutes into the causes of these displacements of the two fragments, because it is to the counteraction of this that all our efforts are directed.

It is not very often that the surgeon has an opportunity of examining after death and dissecting recent simple fractures of the thigh-bone, because of course a fracture of the thigh-bone is not a fatal accident, and it is only if it happens to be complicated with some other injury which is immediately fatal that the surgeon has an opportunity of examining it, and of ascertaining what muscles are at fault. On three occasions we have had opportunities of examining the condition of the muscles in recent fractures of the shaft of the thigh-bone, and I wish to state to you the condition in which the muscles have been found in these three cases.

The first of these cases to which I will direct your attention was that of a man who was admitted about a couple of years ago into Ward 1. His name was John R——, and he was admitted in consequence of having been run over by a cart. The wheel had passed across his chest, produced a fatal injury of the lung, but at the same time had broken both his thighs in very much the same situation—namely, at the juction of the upper and middle thirds. The fractures were simple, and in both limbs the bone was obliquely broken. Now in this man the condition of things was as follows:—On the right side, the seat of fracture was near the junction of the upper and middle third of the thigh-bone. There was riding to the extent of two inches, the upper fragment overlapping the lower one, and being splintered off from below upwards, so as to be oblique from below upwards. The upper fragment was tilted upwards, and rather inwards; the lower one was drawn up behind it. That was the condition in which the limb was found—displacement to two inches, with the upper fragment drawn forwards and inwards.

Now the condition of the muscles was as follows:—On dividing the psoas and iliacus muscles the upper fragment could be depressed slightly. The adductor brevis and pectineus were now found to be tense, and on cutting them through, it could be still further depressed; but it was still drawn strongly inwards. The internal rotator muscles were found very tense, especially the obturator internus. On cutting this through the fragment yielded completely, and fell into its normal position. That was the condition in which the upper fragment of the right thigh was found. So you see the muscles at fault were the psoas and iliacus to some extent, the adductor brevis and pectineus to a greater extent. These had a tendency to draw it somewhat forwards, but the internal obturator was the muscle apparently that chiefly gave rise to the displacement inwards.

With regard to the lower fragment, it was found that the adductor magnus and part of the adductor longus were torn; the other muscles were uninjured. When extension was made with the limb straight out, the flexors of the leg offered a slight resistance. These were divided. The vastus externus was next cut through; the lower fragment could then be drawn down a quarter of an inch. That was the extent to which these muscles operated in producing the displacement. It yielded one inch more on dividing the vastus internus, and three-quarters of an inch more on dividing the adductor magnus and longus, making up the two inches of displacement altogether.

On examining the left thigh a very similar condition of fracture was found. The effect of the section of the different muscles was nearly as possible the same; but the vastus externus seemed to take rather a larger share in displacing the lower fragment. Here, then, you will see that the muscles that were chiefly at fault in connexion with the lower fragment were the vastus externus and internus, the adductor longus and the adductor magnus.

In another case, which occurred previously, and of which I have given a short account in the last edition of my work on Surgery, a very similar condition of things was found. The patient was an old man who died about three hours after meeting with a compound comminuted fracture of the middle and lower thirds of the right thigh bone, and in whom the displacement of the upper fragment *forwards* and *outwards* was very distinctly marked. In this case you will observe that the upper fragment was draw forwards and outwards, and not forwards and inwards, as in the case I have just mentioned. It was found that the gluteus maximus and medius could be divided without affecting the position of the bone; but when the gluteus minimus was cut across, it yielded somewhat. The pyriformis and external rotators were now felt to be excessively tense; and on cutting these across, the end of the fragment could at once be drawn inwards, all opposition ceasing. The projection forwards still remained, however; and this, which was evidently due to the tension of the psoas and iliacus muscles, yielded at once on dividing them. That was the condition of things in the upper fragment in that case, where the rotation was outwards, and the tilting, as in the other case, was forwards. In the one case the external rotators were affected; in the other, the internal. In both these cases the lower fragment was more or less under the influence of the adductors and of the vasti muscles.

There is one other interesting point connected with these cases; and I may allude to it without going into the vexed question as to the contractility of muscles, and the causes of muscular rigidity after death. The interesting point is this: that those muscles which were contracted during life, which had been shortened and thickened by their contraction during life, continued shortened and thickened—in fact, continued contracted after death, and offered the resistance after death to the restoration of the normal position of the limb that they would have offered, and that they did offer, during life. The muscles that were uncontracted at the time of death were not contracted after the rigor mortis had passed; the others continued contracted as they had been during life.

So much for the particular muscles that caused the displacement of the two fragments in these cases of fracture of the thigh, and the different directions in which the displacement may be affected. Now for a few words as to the treatment of these conditions.

Simple fractures of the shaft of the thigh-bone in this hospital are treated, as you are aware, on three different plans—1st, by means of Liston's long splint; 2ndly, by means of the starched bandage; and lastly, by means of extension produced by weights. Now, in all these methods of treatment I believe that the end that is obtained is exactly similar, although the means that are employed for the attainment of that end are dissimilar. I believe that all these methods of treatment are useful, that they may all be advantageously combined, and that it is well, in cases of fracture of the shaft of the thigh-bone, not to rely too exclusively upon any one method of treatment.

With regard to Liston's long splint, it is undoubtedly a very useful method of treatment in all cases of fracture of the shaft of the thigh-bone, but especially perhaps in cases of oblique fracture. By means of it—by the traction on the foot at one end, by the tension of the perineal band at the other—a good length of limb may be maintained without much danger of shortening to any very material extent taking place. Hundreds of cases of fracture of the thigh have been treated in this hospital by the long splint, and I may say uniformly with a very considerable amount of success. I do not say without shortening, for that would be to claim too much for any method, but with results so satisfactory that we have never felt disposed to change it for any other apparatus in the treatment of fracture of the shaft of the thigh-bone.

One objection that has been raised against the long splint is this: that by it traction is made upon the limb in a straight line from the foot to the pelvis—in the axis, in fact, of the long splint itself; whereas in the normal condition the femur is curved, and the action of the long splint has a tendency to obliterate the natural curve of the femur. This objection is entirely a theoretical, and not a practical one. No doubt, so long as the limb is maintained upon it, the long splint has a tendency to draw the limb into its own axis rather than into the natural axis of the femur. But in the case of fractured thigh-bone—as in the case of every other broken bone,—at the end of seven or eight weeks, when the use of the splint is discontinued (supposing the case to be treated throughout on the long splint), the callus is still to a certain extent yielding; it is sufficiently firm to maintain the integrity of the bone, but it is not sufficiently firm to oppose an impediment to what one may term the *moulding* or *modelling* action of the muscles of the limb. These muscles, by their natural contractility, tend to mould the bone into its proper shape, not only after the fracture is set, but even after its union by callus. For many weeks the callus is still sufficiently yielding to admit of a certain amount of moulding, as it were, going on in the shape of the limb, although it is sufficiently strong to support the limb in its integrity without anything like bending or refracturing; and you will find that after the long splint has been discontinued, the limb will fall into its normal shape, even though it may not have had it altogether at the time of leaving off the use of this splint. This is an objection which, of course, applies not only to the long splint, but also in all cases of fracture to every splint that is straight, and that does not adapt itself to the normal curves of the limb. It is not special to the long splint, and it is corrected in all cases of fracture in the way that I have mentioned—by this moulding action upon the still soft callus of the muscles of the limb.

With regard to the Starched Bandage in the treatment of these fractures, I may say that for the last fifteen or sixteen years I have used it very extensively in this hospital. I have been more satisfied, perhaps, with the results obtained from the starched bandage than from any other method of treatment. But the starched bandage requires to be carefully applied; not to be put on too tightly, and yet to be applied tightly enough; and hence there is a little difficulty and a little special art in its application which sometimes interferes with its full utility.

In the use of the starched bandage in fractures of the thigh there are three points to be specially attended to. The first is that the limb should be very thickly wadded, covered with a very thick layer of medicated wool or cotton wadding. The second is that the bandage and pasteboard splint should be applied tightly enough over this wool to compress it well. The wool acts as a sort of buffer, being an elastic material between the bandage and the limb. The third point is that both the knee and the hip joints should be very closely included in the starched apparatus, so that they may be rendered perfectly immovable. If there is any movement allowed either in the knee or in the hip, the success of the apparatus will be very materially jeopardised. I may say that there is a fourth and a minor point that is of importance, and that is, not to put too heavy a weight of the starched bandage on to the lower part of the limb. This should be well bandaged with a dry bandage, but it should not be too thickly coated with starch so as to give rise to too great a weight at the end of so long a lever as the straight starched limb forms under these circumstances.

By attention to these rules you will find that the starched bandage is a most invaluable agent in the treatment of fractured thigh. I may say that the amount of success obtained by the starched bandage upon the whole has been greater than that obtained by the long splint alone; and many cases, even in the adult, have been turned out of the hospital with scarcely any appreciable shortening after the starched bandage, and most commonly with not more than half an inch of shortening at the outside, which is a very good result in cases of oblique fracture of the shaft of the femur. In very many cases in the adult I think it is useful to combine the long splint with the starched bandage; to put up the limb in the long splint for the first week or ten days till the parts have become quiet and it has become of a good length, and then to apply the starched bandage; and, as soon as the starch is set, to allow the patient to get up and to go out upon crutches, so as to avoid the lengthened confinement to bed. In an ordinary case of simple fracture of the shaft of the thigh-bone, the patient may be allowed to walk upon crutches at the end of from twelve days to a fortnight if treated in this way. Children, indeed, may be allowed to get up at the end of three or four days, because the starched bandage may be applied from the very first in children and young people, where the swelling is not great the muscular power small. In infants very little apparatus is needed, and what is used is apt to become soiled. But even in them I think a gutta-percha or pasteboard splint, well wadded, should be applied, and retained by the starch or glue bandage.

I may observe that I have tried other methods of fixing apparatus in cases of fractured femur—of rendering the apparatus immovable,—such as plaster of Paris, glue, and other things; but none, in my opinion, is equal to the starch, for this reason: that the starch when well applied forms a stiffer and stronger, and also, what is very advantageous, a somewhat heavier, coating. The heavier coating has a tendency, as I shall by-and-by mention, to cause more complete relaxation of the muscles of the limb.

Now I believe that the Long Splint and the Starch Bandage, and, indeed, every apparatus that is employed in fractures of the thigh, act very much in the same way. These methods act, not by violently influencing the condition of the muscles of the limb; not by putting the muscles of the limb upon the stretch and so overcoming the displacement that is induced by their forcible contraction. Nothing of the kind. They act by keeping up a certain amount of extension, and so, by fatiguing the muscles of the limb, causing their insensible relaxation at the end of a few days—a relaxation, as it were, from fatigue. They are constantly striving against the impediment that is offered to their contraction; they become exhausted in this effort—that is, their contractility becomes exhausted,—and they fall into a state of relaxation and repose. That is the way the long splint acts. You put on the perineal band and tighten it; and you will find that there is still shortening to the extent of three quarters of an inch. You leave the limb; and in the course of a day or two you put it up again, tighten the band a little more, and then reduce the shortening to half an inch. You leave it again for two or three days, and tighten the band a little more. The muscles get fatigued and relaxed by the constant effort against the strain induced by the traction upon the foot and against the pelvis, and you bring down the shortening to only a quarter of an inch, or to nothing at all. That very commonly happens.

So, again, with the Starched Bandage. After the limb has been put up in the starched bandage it may be of its proper length, or there may be a slight degree of shortening. But after the starched bandage has been applied—at the end of three days say,—you will find that the muscles of the limb are completely relaxed, and that the limb comes down to a proper length. How is this? Why I believe that it is partly owing to the pressure of the bandage, the continuous circular compression of the limb fatiguing and relaxing the muscles; and it is partly owing to the friction that is exerted between the surface of the limb and the interior of the bandage, lined with a thick and elastic layer of cotton-wool. This prevents the limb being drawn up within the bandage, if the bandage has been properly applied; and the muscles become fatigued by this constant action and reaction, and fall into a state of relaxation in the course of two or three days. No violent traction is needed, no forcible effort in attempting to bring down the limb to a proper length; but by waiting quietly, by leaving it at rest, the limb falls into its normal length. I may say that, in using the starched bandage, you do not disturb the axis of the limb, but the thigh always falls into its normally-curved shape—that tendency to slight convexity outwards which always exists in the thigh-bone.

Of late we have employed another method of treatment in fractures of the thigh. We have employed it, partly as an experiment, but also in some instances where other methods have failed. And I think it is well in these cases always to have several strings to your bow, so as not to be too exclusive in your method of treatment, but to fall back upon any one if the circumstances of the case present conditions which render one plan of treatment more advantageous than another.

That method of treatment which we have employed of late is an American method, introduced or perfected by Dr. Buck, of New York. It is a method of treatment by constant gentle traction of the limb exercised by a weight attached to the foot. This constant traction evidently fatigues the muscles of the thigh in exactly the same way that the traction of the perineal band in the long splint does, exactly in the same way that the pressure and the friction in the starched bandage do, and, at the end of a few days, it brings down the limb to its normal length without any material difficulty. It seems to me an exceedingly valuable method of treating these cases; and so far as our experience in this hospital is concerned, I think it is a very useful addition to our ordinary methods of treatment.

Dr. Buck has been good enough to send me a pamphlet showing the way in which this method is applied. It consists simply of three or four short splints applied to the broken thigh itself. By means of strips of plaster a cord is attached to the foot; that cord runs over a wheel, which is fixed in an upright frame, and at the other end of the cord a weight is suspended. The size of the weight will vary according to the age of the patient, and his muscularity; it varies from four or five to nine or ten pounds. In one case which we are at the present time treating according to this plan, where the patient is a very muscular man, we have gone up to as much as thirteen pounds. But in the majority of cases eight to nine pounds is quite sufficient, and in children three to five is enough. The constant traction of a weight of this kind, which is not very great, will fatigue the muscles of the thigh to such an extent in the course of two or three days, as to cause their relaxation, and to bring down the broken bone to its proper length. To prevent the patient being dragged down in the bed by the constant action of this weight, slight as it is, a perineal band is placed in the fork, between the thigh and the pelvis, and is attached to the head of the bed. Dr. Buck recommends an elastic perineal band, made of a piece of india-rubber tubing, covered with muslin or thin flannel, as the best material, so that there is a constant elastic reaction on the one side, and the constant dead weight pulling upon the limb on the other. And the action of these two forces overcomes the muscular contraction of the thigh, and brings the limb down to its proper length very readily indeed.

We have employed this plan of treatment in several cases, as you are aware, and with very satisfactory results. Patients seem to complain of this method of treatment less than of any other—far less, certainly, than of the long splint. It seems to give them no trouble. We are employing it at present in the hospital in two cases where the other methods of treatment are not very applicable. One case is that of a muscular middle-aged man who has met with a very bad fracture from a fall from his horse while hunting. The patient was unable to bear the long splint, and he was so muscular and strong that I was afraid to trust to the starched bandage from the first. On the long splint he became very restless, but since we have put him upon the extension apparatus he has been much more quiet, the limb has come down to a very excellent length and everything promises remarkably well. The other case in which we are employing it is that of a man in Ward 1, who has got a fractured thigh, complicated with a very large and chronic ulcer of the leg. In consequence of this ulcerated state of the leg it would have been very difficult to use either the long splint or the starched apparatus; we should have been obliged to disturb them very frequently to look at the ulcer: and we are employing a weight in this case also with very great advantage. The ulcer is exposed, and is dressed in the ordinary way; the short splints are applied to the thigh; the man is very comfortable, and the limb is of good length. In this case we have put the limb upon a double inclined plane, which is very convenient altogether, and especially on account of the condition of the ulcer; and the traction is applied above the knee instead of from the ankle. That is a modification which does not appear to influence injuriously the action of the apparatus.

Here, then, we have three methods of treatment—the splint, the starched bandage, and the extension by weights,—which are very different in their details, each of which presents undoubtedly very great and special advantages in practice, but all of which, I believe, operate in the same way—proceeding to the same end, as it were by different routes. All operate by producing a degree of fatigue and exhaustion, and consequent relaxation of those muscles that give rise to the displacement in the thigh, and in that way bring the fragments, or rather perhaps allow them to fall into their normal position.

I may repeat what I said in an early part of this lecture, that it is a very satisfactory result to get a fracture of the thigh united with but a limited amount of shortening. In a large number of cases the patient will present no sign of shortening when he is released from treatment at the end of eight or ten weeks, when he has been kept upon the long splint or has been treated by the starched bandage. I have seen adult patients without any shortening whatever after an oblique fracture of the shaft of the femur. In children this is an exceedingly common result. In children, indeed, shortening ought not to take place; and in the adult, even, you will often find that there is but little appreciable shortening, not more than a quarter of an inch, when released from the apparatus. But after the patient begins to go about, you find, if you measure the limb three months afterwards, that a certain degree of shortening has taken place. I believe the shortening in these cases occurs not so much during the time the patient is under observation in the hospital as when he begins to go about. The callus is strong enough to maintain the integrity of the bone, to enable him to walk about to a certain extent, but not strong enough to resist the moulding action of the muscles of the limb that I have already spoken of—not firm enough to prevent a certain amount of yielding from that cause and from the weight of the body thrown upon it. It is from the combined influence of these two—the moulding of the limb to its normal curve, and the weight of the body tending to press the soft and spongy callus a little—that there is a tendency for shortening to increase to a limited extent some time after the patient has passed out of the immediate observation of the surgeon.

But I may say, upon this point, that shortening after fracture of the shaft of the femur to the extent of half an inch is of no earthly consequence; it produces no appreciable lameness or lagging, or difference in gait. The pelvis accomodates itself with the greatest ease to this amount of shortening; slight obliquity of the pelvis takes place, a slight twist in the lumbar spine, and the limb accomodates itself with the utmost facility to this amount of shortening; so that there is no appreciable difference in the patient's appearance or in his gait some months after the accident has occurred.

These are the points that I wished to bring under your attention to-day, in connexion with this very important subject of simple fracture of the shaft of the thigh-bone.

# Clinical Lectures
ON
# DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir Henry Thompson,

**Surgeon-Extraordinary to H. M. the King of the Belgians
Professor of Clinical Surgery, and Surgeon to
University College Hospital.**

## LECTURE VII.

### STONE IN THE BLADDER.

Gentlemen,—I wish to give you to-day a sketch in outline, embracing all the principal points, if I can, of a very large and important subject—viz., stone in the bladder of the adult male. I shall say little about stone in children, and nothing about stone in women.

First of all, in what classes of cases is stone most common? Contrary to what is stated in books on the subject, it is most common in individuals from fifty to seventy. In books you will find it stated to be most common in children. Perhaps it is so if you take the number of cases in children as compared with the number of cases in elderly adults, but not if you take the individuals of either class relatively to the numbers of that class living at the time.

Next, what is the ordinary history of stone? We know well, of course, that the appearance of a stone of some size in the bladder is not the first stage of the malady. The stone begins always—I am now speaking of uric acid—as fine sand or gravel, to use popular terms: that is to say, there is an excess of urates, which, perhaps, steadily persists; then, possibly, of uric acid, in characteristic cayenne-pepper-like masses of crystals; then there are small rounded bodies of this latter aggregated within the kidney, about the size of shot, or somewhat larger, of which you have very good specimens here. An acid calculus, then, is always formed within the kidney; and it is a fortunate thing if it descends into the bladder, because sometimes it is retained in the kidney, and as renal calculus, becomes the source of great misery, for which surgery can do little, although medicine may be of some small service. But if it comes down into the bladder, it is usually passed—say in nine cases out of ten—without any operation whatever. The patient has an attack of severe pain in the back, over the hip, in the groin and testicle, lasting for some hours, and it probably ends in the descent of the calculus from the kidney to the bladder. When it gets there, after a day or two, or before, it is generally expelled by the urine, and there is an end of the matter; only the patient must be told, or ought to know, that this occurrence shows a strong proclivity towards the formation of stone, and he should immediately do all he can to prevent its continuing, as in the nature of things it will do. But if the bladder is unable to expel the calculus, it soon increases in size by deposit on its surface of acid from the urine, and a very hard but rather brittle stone is formed in the course of time. All the stones which you see in this box have been passed through the urethra by the natural efforts; and it is worth knowing how large a stone may be so passed in some cases. Usually, when they get as large as some of these, they fail to pass, and then some operation must be performed for their removal.

The phosphatic calculus is not necessarily formed in the kidney; it is so sometimes, but usually it is formed in the bladder. In the mucus of a diseased bladder a good deal of phosphate of lime is formed, and this, meeting with ammonia from the decomposed urine, produces the ammoniaco-magnesian phosphate. This, with the phosphate of lime, makes "fusible calculus," the commonest form met with. Its structure is not dense, and it is easily crushed. The oxalate-of-lime, or mulberry calculus, I need not tell you is not originally formed in the bladder, but in the kidney, and it is the hardest in structure and the roughest in external surface of all.

Now, what are the symptoms of stone? These we will seek, if you please, by means of the four questions always to be used. A patient tells you, perhaps, that he has passed some gravel for a year or two, and may show you some small stones which he has passed. For the last few months, perhaps, he has not seen any; but, during that period, has had increasing difficulty in passing his water, a circumstance which will strongly excite your suspicion. First, as to frequency of micturition. The patient has for some time had more or less frequency, but it is increased during the day when moving about, and decreased at night, when he is at rest. This is contrary to what usually takes place in prostatic enlargement, and hence it is a good diagnostic point.

You next ask for pain. The patient with calculus of the bladder has always pain, and this is referred to a particular spot, the lower part of the glans penis, about an inch or less from the external meatus. Remember, you may have that pain when there is no stone in the bladder, as in chronic prostatitis and in some affections of the bladder; but in stone it is almost always present. Further, with regard to pain, the question should be asked, whether the patient feels it before, during, or after, making water. He will tell you that it is during and after; whereas you know in hypertrophied prostate, and in all cases in which water is retained, the pain is before passing water, and it is relieved by the act. A man with stone feels pain after making water because the foreign body is then left in contact with the lining of the bladder, and being driven to its neck, severe pain and a sense of desire to micturate are felt, perhaps for four or five minutes, until fresh urine entering, the coats of the bladder are separated from the stone.

Then you ask him the condition of the urine. In nine cases out of ten you find that there is muco-pus, and also perhaps streaks of blood. There is almost always more or less clouded or muco-purulent urine with calculus.

Then, lastly, you ask him with regard to blood. Almost invariably at some time blood has passed, and it is increased by movement. A patient with calculus suffers more pain, and has more bleeding, and the urine becomes more thick, if he takes much exercise. He cannot ride on horseback, nor in a jolting vehicle without considerable pain; in fact, all quick movements of the body intensify the symptoms. Certainly a patient presenting such conditions ought not to be allowed to go without sounding.

Then, how do you sound? You should employ an instrument like this, with a small, short, curved beak, because it can be turned in any direction. If you take [illegible]ment with a large curve, like [illegible] (Continued [illegible] unable to rotate it in the bladder, and hence it does not explore sufficiently.

When I entered this room I asked for the hospital sounds, for I knew I should find among them a good example of what a sound ought *not* to be. Here is one, for example, which no one could rotate, or even find a small stone behind an enlarged prostate with, except by sheer accident. You will say, naturally enough, "Why are such sounds here, and who has used them?" They were used formerly, and found a good many stones, too, in the hands of our illustrious predecessors. But I will answer for it, they have missed a good many stones also; and this is precisely what I want you not to do. I have no hesitation whatever in saying that more stones are missed in sounding than are found, by the ordinary methods adopted in this country; and that must be the case if a sound of the form of the common catheter is relied on for the purpose. [Diagram.] But with an instrument which has this small beak at the end of it, you can search in every direction. If there is a large stone, of course you can find it with anything; but our great object is to find the small stones. Anybody can find a big stone; the art consists in finding a small one. It is more important to find a small stone, because it will grow large, and may be very formidable to deal with;

whereas, when it is small, it is a far less formidable matter. You may promise the patient, in the case of a small stone, that it may be removed without risking his life; whereas, in the case of a large stone, there is always some risk, often considerable danger. But you have something else to do besides merely discovering the presence of stone. It is necessary to have other particulars respecting it, because the nature of the operation to be performed will depend on them. First of all, it is essential to know what the size of the stone is before you decide on what you will do with it. From the note elicited by merely striking it you can get some indication of its size. It is often sufficient for practical purposes to use a sound (which I have long used myself, and have recently introduced) provided with a little slide on the shaft, which by proper manipulation enables you to ascertain very nearly the size of a stone, as you have frequently seen in the wards.

Then there is another way. You may introduce a lithotrite which gives, however, a little more disturbance to the patient, and seize the stone in two or three directions, so as to ascertain its diameters.

At the same time you can ascertain its nature. A phosphatic stone gives a very different sound from the others. The specimen before me is dry, and therefore will not give the sound to which I refer. When wet, it is spongy and soft, with a rough surface, and always gives a dull note when struck; whereas the uric-acid stone gives a hard ring. Then you will judge partly by the condition of the urine. If the urine is acid, and if, also, uric acid is thrown down, you may conclude that the patient has a uric-acid stone. If so, it is likely he has passed small calculi before. If the urine is very alkaline and there is a great deal of phosphatic matter, you may conclude that it is a phosphatic stone, or, at all events, it is covered with phosphates.

The number of stones is the next thing. Usually there is only one stone, but occasionally there are more. There is a patient [illegible] lithotrise to-morrow, who has two large uric-acid stones in the bladder. The way to determine that point is this: Having seized one in the lithotrite, you move it gently in every direction as a sound for others. If then you encounter one on one side and one on the other, you know that there must be at least three stones.

I have spoken of uric-acid and of phosphatic calculi. But it may happen that you have an oxalate of-lime stone—a very important thing to ascertain. You examine the urine, and see if there is much oxalate of lime thrown down. The patient may have passed a small mass of oxalate of lime before, and you may infer that an oxalate-of-lime calculus exists now; but then it may be covered up with phosphates, and so deceive you.

Having got all these data, the next important question is, what are you to do? Are you to cut, or to crush? You know there are only two modes of removing the stone. You must either make an opening sufficiently large to admit of its withdrawal, or you must crush the stone into very small fragments, so that they may be expelled by the natural passage. It was less important to make a diagnosis of all these points when we had but one operation—namely, that of cutting. Formerly, whether the stone was large or small, the patient was always cut. There was no other way of removing it. Now that we have two operations, it is very important that we should choose the right one, because, let me tell you, if you do not determine pretty accurately the characters of the stone, and select the right operation, you may do more harm than if you cut every patient. If you crush the very large stone, and cut for the very small one, you will have greater mortality than if you simply resorted to the one operation of cutting in all cases. When lithotrity was first introduced, it was rather a clumsy operation; and when the cases were not judiciously selected, when surgeons crushed without making a diagnosis of all these points—crushed stones that ought really to have been cut, and left for cutting stones which might have been crushed,—the entire mortality resulting from operations for stone was greater than previously, when every case was cut. I cannot give you a stronger argument for the necessity of apportioning the operations judiciously.

Now, without taking up your time too much, I will lay down what you will understand to be the axioms which should direct you, in a general way, in making your selection. First of all, I will say that all stones, under puberty, with very few exceptions, are to be cut. Under fourteen or fifteen years of age, stones occurring in the male are to be cut, unless they are very small, and can be crushed, say, in one operation; because lithotrity is not a very easy or successful operation in children, the urethra being small and the bladder very irritable; whereas, as is well known, lithotomy is a very successful operation in these cases. We do not want a better operation, comparatively speaking, and one may be content to let well alone. Not more than one death in fifteen or sixteen cases occurs from lithotomy in children. I do not think, therefore, we can do better than to cut in these cases, as a rule.

That leaves us all the cases above puberty. Then I will say, in general terms, that all the cases above puberty are to be crushed, with certain rare exceptions. The first exception is in a case of an oxalate-of-lime calculus, which is, let us say, an inch in diameter. Under an inch in diameter you may crush an oxalate-of-lime calculus. I have crushed four or five in my time. The cases are very rare. Two of them were in this hospital. An oxalate-of-lime stone, from the size of a bean up to an inch in diameter, can usually be crushed; above that size no instrument can deal with it, and the fragments will be so hard that the operation might be of doubtful value, even if we succeeded in crushing. That, then, is the first exception to the general law that all cases in adults are to be crushed.

Secondly, a large stone of uric acid, or a phosphatic stone of *very large size*, had generally better be cut than crushed. Mechanically speaking, it is possible to crush any stone, whether uric or phosphatic; but, considering the number of sittings required, and the amount of irritation produced, the single operation of cutting will be the better of the two when the stone is, shall I say, full two inches in diameter. A stone which is two inches in diameter, either phosphatic or uric acid, had perhaps better be cut. No doubt a rather larger phosphatic stone may be crushed. Here is a very large one, two ounces and a half in weight. The phosphatic stone is very friable, and you may deal with rather larger phosphatic stones than uric-acid stones by lithotrity. So much for the exceptions to cutting, regarding the characters of the *stone* itself.

Now what are the conditions on the part of the *organs* which will make it necessary for you to cut instead of crush? If you have a bad stricture of the urethra you cannot crush; if you have a very highly diseased condition of the bladder probably you cannot crush: but the exceptions are very few indeed. First of all I will tell you what are not exceptions, but which are stated to be so in books, and are generally considered as exceptions; because lithotrity has advanced since the time of most books. I have recently crushed a uric-acid stone in a case of organic stricture with small intruments made for the purpose; but the stricture was not a very narrow one. Hypertrophy of the prostate was said to be an exception: it was said that you could not crush under those circumstances. I make no difference whatever in respect of that matter; I would as soon crush in the case of hypertrophied prostate as in any other. It is only a question of delicate manipulation. If the hypertrophied prostate occurs in a man who has had instruments passed, he will have become habituated to them, and is therefore a better subject than a healthy one who has not been so accustomed. Next, it was said that when the bladder could not empty its contents by its own power, and the urine had to be drawn off by means of a catheter, lithotrity was contraindicated, inasmuch as the fragments could not be passed. On the contrary, I rather prefer such a case, for the reason just assigned—that is, the bladder and the urethra are habituated to instruments; and as to not removing the fragments, there is no difficulty at all in removing the very last fragment, thanks to the improved methods now employed. It was said also that great irritability of the bladder was a reason why we could not crush. It was said that if the bladder could not hold above three or four or five ounces of urine there would be no room for the lithotrite to work, and therefore the surgeon must cut. I make no objection on that ground, because the irritation of the bladder is due to the presence of stone; and as soon as you begin to get away the stone the irritation diminishes. Besides, it is not necessary to have four ounces of water in the bladder: one ounce is ample. There is no occasion to have four or five ounces in order to perform the operation of lithotrity. It might have been so with the old, clumsy instrument; but with modern instruments there is no necessity to protect the bladder from contact with them. When instruments were used that were apt to catch the coats of the bladder it was no doubt desirable to have a quantity of water in the bladder; but with modern instruments, which will not lay hold of the coats of the bladder, there is no difficulty whatever in crushing with a single ounce of water. I do not care whether the bladder is empty or contains a large quantity of water provided only that it is not too full. Nothing is worse than too much water, because the stone rolls about, and you must, figuratively speaking play a game of hide-and-seek to catch it. It is better to have an empty bladder than a bladder with half a pint of water in it.

You see then that the exceptions are very few; indeed there are very few adult cases which cannot be crushed, provided you give proper care and attention. If the present generation of surgeons now growing up, progress, as they must, and become more intelligent and more careful than those who have gone before—if they are better acquainted with the subject, as they must in the nature of things be, as our sons will be wiser than ourselves, and our grandsons wiser than they,—there will be fewer and fewer exceptions; because if the stone is discovered when sufficiently small, *it can always be crushed with an almost certain chance of success*; so that lithotomy must at some day disappear, except for cases which have been strangely neglected by the patients' themselves, or have been overlooked by the medical attendant.

Next week I shall place two stone patients on this table, and demonstrate the operation of lithotrity for you here in my lecture on that subject.

# Original Papers.

## ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

## AS EXEMPLIFIED IN PRIVATE PRACTICE.

By Charles J. B. Williams, M.D., F.R.S.,

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### INTRODUCTORY REMARKS.

BY DR. C. J. B. WILLIAMS.

### PATHOLOGY OF PULMONARY CONSUMPTION.

*(Continued from June No.—p. 342.)*

In thus regarding the lesions of consumption as the result of a degradation in the nutritive process, we are reminded of what is strikingly the truth, that there may be many degrees in this process of degeneration, and that these degrees include a diversity in the gravity of the disease, as regards both extent and duration, far greater than is commonly supposed.

In the acute varieties of tuberculosis, examples of which have been mentioned, the plasma or nutritive material is in the most generally and completely degraded state; and whether the disease appears in the form of very numerous *miliary granulations* (*proliferating cells*), independent of inflammation, or whether the result of inflammation attacking large portions of the lung, and ending in copious effusion of *corpuscular* or *scrofulous lymph*, its tendency is to involve the tissue in speedily fatal obstruction and consumption, so rapid that the disease may run its course in a few weeks.

When the degradation is less marked, the tuberculous deposit is less abundant, and slower in its degenerative tendency. If occurring in the form of granular tubercles, they are less numerous and general; they may cause as much cough and quickness of pulse, but less dyspnœa and febrile depression. Having less of the pus-like property of active cell proliferation, they do not so soon choke their abortive life into fatty decay. There may be even time, and resistence enough in the affected textures, to throw out a little fibrous protection against the tubercle and its destructive tendencies, and gradually this fibrous deposit contracts and helps to dwindle the tubercle, or to shrink its cavity; or if inflammation has caused the tuberculous consolidation, the exudation matter is less corpuscular and more fibrous, and tends to contract as much as to soften, or at least retards this latter result. Thus in the commoner, more chronic cases of phthisis, there is more a mixture or alternation of the aplastic and decaying with the cacoplastic and contractile processes in the lung; and after death all sorts of results of these processes are found after many months, or it may be many years, of struggle between the work of destruction and of partial reparation that has been going on under the varying conditions of the patient.

There is an interesting class of cases in which the cacoplastic deposit is more entirely fibrous, with few or no miliary granulations, and with little or no tendency to pass into yellow or cheesy degeneration. The most striking examples of this kind are those which originate in extensive pleuro-pneumonia, and end in consolidation and contraction of the lung, and dilatation of the bronchi.* When affecting the right lung, the heart is sometimes drawn over to the right of the sternum: and when on either side the healthy lung is more or less drawn over to the contracted side. The universal and firm adhesions of the pleura sufficiently prove the inflammatory origin of these cases. I have met with a few such cases in which the fibrous deposit has been pure throughout, unmixed with tubercle, granular or yellow, and the fatal termination has been from increasing obstruction to the respiration and circulation, and ultimate dropsy. In most instances, however, tubercles appear in other parts of the lungs, and softening and excavation show the lowering of the standard of nutrition to a more aplastic or consumptive degree.

Of still more common occurrence are the partial deposits of this cacoplastic fibroid tissue around tubercles and around cavities in chronic cases. They, for the most part, cause both the slight flattening below a clavicle sometimes obvious at an early stage of disease, and also the more extensive collapse of one side in front over cavities, with the drawing up of the heart on the left side, and of the large arteries on the right side. Their effect is seen also in the puckering of the pleura around the cicatrices of old cavities, or around calcified and shrunken tubercles. In fact, this is commonly the material with which Nature endeavors to patch up spots of consumptive decay in the lung; it may be in a clumsy manner, like the corrugated and unsightly scars often left in the skin by burns and scalds and scrofulous ulcers. On the other hand, too many cases instruct us that if this contractile cacoplastic deposit has a conservative tendency in its higher forms, it also may degenerate, and discover its affinity to tubercle, by undergoing the same disintegrating process, by turning into caseous matter, which softens and forms cavities; whilst at the same time granular tubercles appearing in other parts of the lung, previously healthy, give further proofs of the general degradation of the nutritive process, in the evolution of these germs of decay. These miliary tubercles, or grey granulations, may well be termed the lowest and most surely decaying form of cacoplastic deposit; for although they have a life and organisation, it is doomed to the earliest decadence and destruction —nay, their rapidly proliferating nuclei or cells choke themselves, and become the centres of intrinsic decay.

But we must not conclude this introduction without a little further examination into the nature of these grey granulations; for since the discovery by Virchow of their distinctly cellular structure, they have been assumed by several subsequent writers to be the true and characteristic type of tubercle, and to have a claim to be classed rather with growths than with deposits. What position should they occupy in pathological classification? Are they *deposits*, like lymph, pus, and other exudation matter? Or are they *growths*, like cancer? The following comparison may assist in answering these questions:—

| *Miliary grey tubercles.* | *Cancer and similar growths.* |
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| *Structure.*—Small nucleated cells, like in corpuscular lymph or pus, with interstitial hyaline and a few fibres; but with little or no trace of vascularity. | *Structure.* — Large and highly organised cells, with well developed nuclei and nucleoli, contained in a distinct stroma, abundantly supplied with bloodvessels. |
| *Progress.* — No further development or growth beyond the formation of minute knots, which, under the pressure of a membrane, may somewhat flatten. No spreading to adjoining parts, or from tissue to tissue. | *Progress.* — Grow in any direction, forming increasing tumours. Spread and penetrate through all textures, by continuity and contiguity. |
| *Termination.*— Generally soon undergo cheesy degeneration and softening, which involve the cells and containing structure in decay, more or less mixed with inflammation of adjoining textures. More rarely the cells dwindle, and the tubercle shrinks into obsolescence. | *Termination.*—Generally live and grow on, with an independent parasitic life of their own, till they prove fatal by injury to function and structure by their bulk, and spoiling the nutrition of the body through irregular ulceration, hæmorrhage, and cachexia. Rarely degenerate into cheesy matter, and then only from injury to their structure by pressure. |
| *Origin.* — Simultaneously appearing in several points in one or in many organs. | *Origin.* — Generally appearing in one part only, and not spreading for some time, and then by growth and dissemination. |

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* These cases were first described by me in Lectures published in the *Medical Gazette* in 1836. A similar case was afterwards described by Dr. Corrigan as cirrhosis of the lung, and the lesion has been referred to under that name by subsequent writers. I have always classed it as a contractile form of cacoplastic deposit, as described in my "Principles," 3rd ed., 1856.

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|---|---|
| *Causes.*—Hereditary predisposition. Other influences deteriorating the nutritive functions, such as poor living, confinement in impure air, damp, and cold; prolonged fevers; imperfectly subdued inflammations; inoculation with grey or yellow tubercle, or with pus, or with the blood of a tuberculous or pyæmic subject. | *Causes.*—Hereditary predisposition. Other causes unknown. Inoculation doubtful. |
| *Occurrence.*—So common that it is the cause of a considerable proportion of deaths in all countries, climates, ages, and ranks. | *Occurrence.* — Comparatively rare; chiefly affecting persons at adult or advancing age. |

Thus the whole clinical and pathological history of grey tubercle seems to separate it widely from cancer and other growths, and to approximate it to pus, lymph, and other exudation materials as a modification of the ordinary process of textural nutrition. The manner in which granular tubercles appear in distinct points, scattered through one or several organs, bears a strong resemblance to eruptions, in which something morbid contained in the blood excites little spots of inflammation scattered in the skin or mucous membrane. In the case of grey tubercle, the local modification of nutrition may not amount to inflammation; but it is an exaggeration of cell-proliferation, having, nevertheless, several points of resemblance to purulent deposits. In form, size, and distribution the cells of grey tubercle are most like those of pus (Virchow); but they differ in being solid instead of containing a fluid. The liquor puris, within and without the pus-cell, renders it more active in its tendencies, and is more essentially connected with inflammation, both as to effect and cause. Granular tubercle, on the other hand, although its development may be promoted by inflammation and congestion,[*] may be quite independent of it; and its more solid constitution makes it more chronic in its changes. But if, from inactivity of circulation or other cause, pus is retained long in a part, it becomes dry, loses its active character, its cells shrink and undergo the cheesy transformation, and the resulting matter is not to be distinguished from softened yellow tubercle. The cells of recent granular tubercle have also been observed to resemble the lymph-cells of the lymphatic glands and spleen; and these, again, are like the white corpuscle of the blood, which is supposed by some to originate in the lymphatic system. Without admitting this, which I hold to be too narrow a view of the origin of the white corpuscle, it is interesting to note the tendency of lymphatic glands to inordinate cell-proliferation, which ends in caseous degeneration, precisely as takes place in granular tubercle.

The communicability of tubercle by inoculation, first proved by the remarkable experiments of Villemin,[*] and further exemplified by Mr. Simon,[†] Dr. Andrew Clark,[‡] MM. Hérard and Cornil,[§] and Dr. Marcet,[‖] is a most important fact in relation to tuberculous diseases. At first sight it might be supposed that the existence of a peculiar tuberculous poison was indicated by these experiments;[¶] and MM. Hérard and Cornil, in their zeal to distinguish grey tubercle as the only type of the specific disease, have sought to limit communicability by inoculation to this form of tubercle only. But the original experiments of M. Villemin, and still more those of Mr. Simon and Dr. Marcet, prove that yellow tubercle can equally produce grey tubercle; and the latter obtained the same result from the inoculation of the muco-purulent expectoration of patients suffering from various forms and stages of phthisis. Dr. Marcet also inoculated a guinea-pig with blood taken after death from a phthisical subject, and another with pus from the chest of a patient tapped for empyema; in both cases tubercles were found in several organs of the animal.

Now it is to be observed that this ready production of tubercle by inoculation has been achieved almost exclusively in rabbits and guinea-pigs. It has been attempted in several other animals, and has very rarely succeeded. Nor is this very surprising when it is considered how very prone rabbits and guinea-pigs are to tuberculous disease from other causes, such as cold and damp, and insufficient or improper food. They may therefore be considered usually, in the domestic state at least, predisposed to tuberculous disease; and it is not surprising that the introduction into their bodies of tubercle, in any of its forms, whether in its proliferating cells or in its degenerating and disintegrating state, should bring this predisposition into activity. That pus so introduced should have a similar effect is a strong argument in favor of the affinity of pus and tubercle; and if on multiplication of such experiments it were found that in several cases the inoculation with pus where it fails to produce pyæmia and purulent deposits, causes the more chronic result of tuberculisation instead, the relationship may well be considered proved.[**] In other words, in these animals the standard of nutrition is low, and its material easily degraded from the euphastic to the cacoplastic or aplastic states, and this may be effected in a few days or weeks by the introduction into the blood of a leaven of degenerating matter, whether grey tubercle, caseous matter, scrofulous pus, or even common pus.

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[*] An attack of bronchitis in a tuberculous subject often produces a crop of tubercles. The congestions of typhus and exanthematous fevers have a similar effect. I have several times found after death in such cases the tubercles only in the posterior parts of the lung, which were the seat of hypostatic congestion.

[*] Gazette Hebdomadaire, 1865-6; and Etudes sur la Tuberculose, 1868.

[†] Trans. Pathol. Soc. Lond. 1867.

[‡] Medical Times and Gazette, 1867.

[§] Phthisie Pulmonaire, 1867.

[‖] Med-Chir. Trans., 1867.

[¶] This notion has been distinctly put forward by more than one writer. It was proposed many years ago by Dr. Madden, of Torquay.

[**] Since this was written I have been informed by my friend Dr. Burdon Sanderson, that in a very extensive series of experiments recently performed by him this result has been actually obtained—that is to say, that tubercles have been produced by the inoculation of pus without any tuberculous taint. As these experiments are yet unpublished, I can only allude to this result, which confirms the intimate relation between pus and tubercle, which I had endeavored to point out. The animals operated on were, as usual, rabbits and guinea-pigs, subjects predisposed to tubercle; and does not this suggest that in the predisposed human subject—that is, having tubercles or being disposed to them—the process of suppuration occurring in the body may produce a similar result, unless the matter is freely eliminated from the body? I recollect two cases of acute tuberculosis speedily fatal, apparently produced by the sudden suppression of suppuration: in one case established by a seton in the arm: in the other by a croton-oil liniment on the chest.

[The preceding note was written about the middle of March. Dr. Sanderson's researches have since been read at the Pathological Society.]

The general conclusion with regard to pulmonary consumption is, that it depends on the deposit of a cacoplastic or aplastic matter in the lung, tending to further processes of degeneration and disintegration, which involve the tissues of these and other organs in decay, and, sooner or later, spread their wasting influences through the whole flesh and blood of the body.

But as the disease is thus a lowering or degradation of the natural process of nutrition, it may be expected to show different degrees of degradation from the natural or healthy standard, and therefore different degrees of destructive or consumptive tendency; and it is in these gradations that we find an explanation of the forms and varieties of pulmonary consumption, and their remarkable differences in symptoms, tractability, and duration.

In the worst form of acute tuberculosis, cited in the first of these papers, the whole blood is infected with the proliferating cells of nascent tubercle, as it is with pus in pyæmia; and the rapid invasion and obstruction of the lungs is attended with the general adynamic and typhoid symptoms of blood-poisoning, which may destroy life before there is time for the further softening and decay of the tubercles. But this is an extreme and comparatively rare case. More commonly the tubercles degenerate, soften, and form excavations, the intervening tissue becoming inflamed and partially hepatised, its grey or mottled hue and fragile substance proving its degraded state, and how the lungs, thus riddled through with small vomicæ or tuberculous abscesses, become an unresisting prey to the ruthless destroyer, *galloping consumption.*

In the pulmonic form of acute phthisis the blood is less extensively affected, and the deposition of tuberculous matter in the form of corpuscular or caseous lymph is at first confined to the inflamed part. But this soon softens, involving the containing tissues in ulceration and decay; and whilst it thus goes on consuming the organ, it also infects the blood, causing rapidly increasing weakness and emaciation, hectic fever and sweats, and further dissemination of granular tubercles in other parts of the lungs, in the intestines and in other organs: thus proving its identity with those other forms of tuberculous disease.

So, too, we may have something like the converse of the above case, when granular or clustered tubercles have pre-existed, and a portion of the lungs—a lobule, a lobe, or a whole lung—has been attacked with acute inflammation, ending in consolidation with aplastic deposit, already presenting, or soon assuming, the caseous character, with the usual softening and excavating tendencies of yellow tubercle. This, when extensive, constitutes another variety of acute pulmonary consumption.

Among the acute forms of pulmonary consumption may also be reckoned the hæmorrhagic and embolic varieties, in which the great pulmonary vessels are extensively diseased; leading in one case to frequent and excessive hæmorrhage, and in the other to the obstruction of the same vessels with fibrinous clots. This latter has been described by Dr. Andrew Clark. These are of rare occurrence, and we cannot do more than mention them.

In by far the largest proportion of cases, pulmonary consumption is a chronic disease, lasting many months, and even years. Yet we find in these the same lesions as in the acute disease, but either more limited in extent or less degraded in scale; so that they more slowly encroach on functions and structures, and we have more time and means to control and counteract them.

In chronic phthisis we may still distinguish *inflammatory* and *tuberculous* varieties. In many instances a previous attack of inflammation of the lungs, or of the more intense form of bronchitis, has left behind it a consolidation of the lung-tissue, which may form the foundation of pulmonary consumption. After the attack the patient recovers to a certain extent, and may lose cough and expectoration; but the breath is shorter on exertion, and there is greater liability to fresh attacks. Either in consequence of one or more of such attacks, or after some deterioration of the general health, the cough returns and becomes constant, attended with muco-purulent. expectoration, and perhaps, occasional hæmoptysis; moist crepitus is heard in the old consolidation, and may be in other parts as well, and the career of phthisis is begun.

The cause of this change is the further degeneration of the inflammatory deposit, from the caco-plastic to the aplastic state—in other words; from the low organised solid to the granular, disintegrated condition of opaque softening; and, consequently on this, miliary tubercles appear in other parts from the diffusion of the degenerated matter through the bloodvessels and lymphatics, and so the deterioration and consumption becomes general.

On the other hand, if the subject of a former inflammatory consolidation is carefully protected from the causes of fresh attacks, and from all deteriorating influences, the consolidation may preserve and even improve its organisation, by becoming more fibrous and shrinking, whilst the granular or hyaline part is removed by absorption, the diminished space being filled by dilatation of the neighboring air-cells.

In cases in which the inflammatory consolidation is very extensive and tough, as after chronic pleuro-pneumonia, it may remain long in its contractile condition, constituting what has been called cirrhosis of the lung, which I believe to be identical with that recently described by Dr. Andrew Clark as "fibroid phthisis." But such cases commonly tend to degenerate further; and sooner or later, cavities are formed; granular tubercles then begin to appear in other parts; and thus the disease ends like ordinary phthisis.

On the contrary, we have known several such cases take a turn the other way and recover. The condensed tissue, after a long time, reopens, partially and irregularly at first, with more or less crepitus in the breath-sound, which eventually is replaced by a remarkably dry vesicular sound, indicative of what has been described as flaccid or atrophied emphysema.* This may occur in some parts, whilst others are still condensed; and thus some parts sound hard and dull on percussion, whilst others are remarkably clear; and the vesicular breath-sound is diversified with patches of obstruction, and of whiffing tubular sounds of breath and voice. We may even have cavernous sounds, from extensively dilated bronchi, or from a dry pulmonary cavity in one part, and the clear stroke and dry breath-sound of flaccid emphysema in adjoining parts; and this strange combination of signs may be permanent in cases of imperfect cure. But in the best cases, which occur generally in young subjects, the restoration of the lung is more complete; and the dulness, obstruction, and tubular sounds give place to clear pulmonary stroke and breath-sounds, the tubular sounds disappearing, except perhaps within or above a scapula, where they are rarely quite obliterated.

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* Library of Medicine, vol. iii., p. 156—9.

Chronic phthisis frequently also originates in granular or clustered tubercles, forming independently of inflammation. Either from hereditary defect or from the operation of some deteriorating influence in the system, small portions of the blood-plasma are deposited in the lungs in form of the proliferating cell, (germinal matter, Beale,) with its degenerative tendency, but to a much more limited extent, and probably in a more gradual manner, than in acute tuberculosis. Therefore the disease is more partial, producing less disturbance of function and structure; but still distinguished by characteristic symptoms and signs, and tending, if uncontrolled, to increase insidiously, and to spread its decaying influence slowly but surely in the lungs and in the system, and in two or three years to run its fatal career. But this chronic form of the disease may often be controlled, in most cases retarded, so that life is prolonged in some comfort for many years; and in not a very few instances it may be altogether arrested and cured.

Without further dwelling on general description we proceed to illustrate the subject by a series of cases, as they have occurred in private practice.

Before we proceed to give short abstracts of the cases which are intended to exemplify the subject of this paper, it will be necessary to explain briefly the plan on which the selection is made. The notes at our disposal extend over a period of upwards of thirty years, and include notices, long or short, of more than 20,000 cases. Such numbers, although available for some statistical purposes, are too great for practical results, and they will the better bear reduction because many of the cases have been under observation only once or twice, or for a period too short to supply conclusive facts in respect to a disease more or less chronic. A selection has, therefore, been made of those cases which have been seen or heard of a year and upward after the first examination, so that a more correct estimate may be formed of the course of the disease and of the influence of treatment. This selection excludes the rapidly fatal cases of acute tuberculosis, which fortunately are comparatively rare. On the other hand, it also excludes the more numerous instances of speedy amelioration in the early stages, or slighter forms of the disease, in which a cure, whether permanent or not, has been effected in a few weeks or months; and the patients have not found it necessary to repeat their visits. Uncertainty must hang over the results of many such cases, both in private and in hospital practice; but that their issue is often more favorable than is generally supposed to be the case in pulmonary consumption is probable from the fact, that a week hardly ever passes without the reappearance or the tidings of a former patient seen and found to be phthisical in years gone by.

By thus selecting cases which have been at least a year under observation, those which speedily prove fatal are excluded; but this does not apply to all acute cases, for it will be found that some presented an acute character at first, or at one period of their course, with symptoms of rapid decline, and yet the patients have survived, recovering a certain amount of health and flesh, whilst the disease has remained in a mitigated and chronic form.

Another limitation has been made with regard to the period from which these cases are taken. Although we possess the records of thirty year's experience and upwards, we have not yet had leisure to profitably deal with more than sixteen years, commencing with 1842 and ending with 1857 inclusive; and the time that has elapsed during this period affords a rare opportunity of observing, in a number of cases, the manner in which the disease may become developed and begin to show its destructive nature, and yet be arrested more or less completely under treatment. On some future occasion we hope to give the results of the whole series of records at our command. The present selection will reduce the numbers to 500; of these we proceed first to give abstracts of those cases most remarkable in their results, and afterwards propose to examine the statistics of the whole number.

Case. 1—A veterinary surgeon, aged thirty. August 6th, 1846: Six months suffering from cough; copious expectoration; rapid loss of flesh, strength, and breath; now sweats and diarrhœa. Physical signs: Dulness in both upper parts of the chest, but mostly in the right, where cavernous sounds exist, with obstructed breath around. Ordered, cod-liver oil twice a day; and a pill composed of sulphate of copper and morphia every night. Liniment of acetum cantharidis.

Oct. 18th.—Was blistered freely, and has taken the oil regularly, increased to six drachms three times a day. Very much improved in every respect. Has gained nine pounds; can walk five miles, and can even run. Bowels now costive. Physical signs: Still cavernous sounds in upper right side of chest, but no crepitus around, and more breath.

March 6th, 1848.—Was quite well, with the exception of the breath being rather short, and left off the oil twelve months. Fourteen days ago he was attacked with "severe pleurisy" of the right side after exposure to cold. Has been blistered, and is better, but very weak. Physical signs: Still large tubular sounds above and below the right clavicle, but percussion good. Loud sonorous rhonchus on deep breath, and slight crepitus at left base.

July 29th, 1850.—Took oil, &c., and soon recovered. Now walks twenty miles, and is stouter than ever; but breath still short, and suffers from cold wind. Physical signs: Tubular sounds above both clavicles, but stroke and breath-sound clear in all parts; expiration long.

Sept. 18th, 1854.—Quite well, except occasional lumbago, and in last few weeks cough. No oil for nine months. Physical signs: Some dulness, obstruction, and croak in upper right.

July 8th, 1859.—Generally well except occasional attacks of cold and cough, for which he blisters and takes oil, and is soon well, gaining twelve or fifteen pounds. Physical signs: Still some dulness and tubular sounds in upper right back.

1868.—Heard he continues well, *twenty-two* years from first attack.

Case 2.—A young gentleman, aged fifteen. Several paternal aunts died from phthisis. Sept. 12th, 1847: Nine years ago, after gastric fever, was very weak; the cervical glands became enlarged, and discharged several times on both sides for a year or more. A year ago had measles, followed by whooping-cough; and ever since has had cough and short breath, and been thin and weak. Physical signs: Superficial dulness, tubular sounds, and moist crepitus below left clavicle. Loud tubular sounds, and small spot of dulness within right scapula. Prescribed cod-liver oil, and a vesicating liniment occasionally.

May, 1848.—Wintered in Madeira, but did not continue the oil. Cough and breath better. Physical signs: less dulness and crepitation in left front. Still tubular sounds in right interscapula region.

June, 1860.—Another winter was passed in Madeira, and two in Egypt and Italy. Taking oil irregularly. Cough generally better, but not much improvement in breath or strength. Dr. Williams then recommended long sea voyages for two years. Accordingly he went to Australia and India, and returned much improved in flesh and strength, and had quite lost cough and expectoration. Has since wintered chiefly in Egypt, which agrees well. Physical signs: Chest and respiratory power increased. Stroke clear (emphysema), and breath-sound rather rough in left front. Tubular sounds at right scapula. Still loud tubular sounds within left scapula.

1865.—Has enjoyed more uniform and vigorous health, and wintered three years in Scotland and England. Now in Parliament, and attends pretty regularly.

Dec. 1866.—After skating in Scotland, was attacked with pain in the chest, dyspnœa, and fever, with obstructed breathing and crepitus in both lungs, most in left. This soon subsided under treatment, and the chest returned to its former state; but after wintering in South Hants, the stomach and bowels were disordered more or less all summer till six weeks at Kissengen under the goat's milk cure; after which he winted at Cannes. More than *twenty years* have passed since his first visit.

Case 3.—A gentleman, aged twenty-two, first consulted Dr. Williams on October 4th, 1847. Six months ago he had an eruption, followed by boils, and three months later cough and expectoration, which continued up to the present date. Physical signs: Dulness and deficient breath in upper portion of the left side of the chest. Was ordered a mixture of nitric and hydrocyanic acids, tincture of hops, and henbane in decoction of Iceland moss; and counter-irritation with acetum cantharidis.

Aug. 12th, 1848.—Lost cough, and improved much in two months; but caught fresh cold a month later, and cough returned, with wasting and sickness, the latter having been caused by trying impure cod-liver oil. Physical signs: Dulness and dry cavernous sounds in both mammary regions; large tubular in upper back.

Dec. 5th.—Has taken pure oil in a mixture of nitric and hydrocyanic acids, with tincture of orange peel regularly at Ventnor, with increase of strength and appetite, and of weight amounting to 14 lbs.; cough worse at Ventnor. Physical signs the same, but crooky cavernous sound under left clavicle.

May 5th, 1849.—Generally better, and cough moderate. The oil occasionally sickens when exercise is not taken. Physical signs: Dulness in left side; muffled cavernous sounds below left clavicle; cavernous croak above scapula; tubular sounds above right scapula.

Sept. 25th.—Continued well till a week ago, when he had hæmoptysis, six ounces.

May 4th, 1850.—Had bilious fever some months ago, which much reduced him. Omitted oil for one month, but has since taken it regularly, and quite recovered flesh and strength; cough moderate; physical signs the same.

May 9th, 1851.—Well since, and out all the winter at Ventnor, with only slight cough, and no expectoration; no croaky or cavernous sounds in left lung; obscure bronchophony in scapular region, and breath weak above and harsh below. In right lung, respiration tolerably vesicular: expiration long, but not tubular.

October, 1852.—Embarked for New Zealand, but was wrecked in the Channel, and much exposed to cold and wet, without permanent injury. Wintered well at Torquay, and went to New Zealand in September, 1853.

Oct. 28th 1863.—After arrival in Auckland, had more or less cough the first two or three years, but gradually lost it, and for the last six years has been quite well. Held a Government office in New Zealand till his return this year. Has been married several years. Physical signs: Tubular breath in upper part of both sides of chest, most in the left, but good vesicular below.

1867.—Has lived in England four years, wintering at Falmouth, and enjoys general good health.

In this case we may fairly conclude that cicatrisation of the cavities took place, and that no deposit of considerable amount remains. The patient has lived *twenty years* since his first symptoms, and for the last ten has had no active disease.

Case 4.—An unmarried lady, aged twenty-eight, consulted Dr. Williams September 3rd, 1847. Had a cough for eighteen months, which commenced after taking cold baths, and had persisted ever since. Six months ago a remarkable purpura eruption came on her body, which had mostly disappeared, but was followed by increase of cough. Formerly had swellings under her jaws, but these had diminished. In the last two months, breath, flesh, and strength have been very much reduced. Had no appetite till she visited Margate, and on her return from that place she spat a few mouthfuls of blood, which relieved cough and tightness of chest. Patient at present very weak and much emaciated; has quick pulse and profuse night sweats. Physical signs: marked dulness and cavernous sounds in more than upper half of left side of chest; stroke-sound clearer below, and moist crepitation; some moist crepitation in upper part of right side also. Ordered a combination of nitric and hydrocyanic acids, with tinctures of hop, calumba, and henbane, and a linctus containing morphia. A week later she was no better, and had loathing of food and increasing emaciation. Cod-liver oil was then added to the above treatment, and two months later she had wonderfully improved in flesh, strength, and well-being, with little cough, no expectoration, and an excellent appetite.

Jan. 1848.—Continues to gain flesh and strength; catamenia absent; dulness and dry cavernous sounds in upper part of left lung. Ordered a nightly pill of aloes and iron, and the continuance of the oil, etc.

Oct. 1848.—Well and in good condition; cough moderate; able to walk several miles; but breath still short, and lately has had diarrhœa; catamenia now regular; dulness and dry cavernous sounds in upper left down to second rib; obscure vesicular breath below.

Was married in 1850, and Dr. Williams has not seen her since, but has heard that she was alive and well in 1867, twenty years after the first visit, and *twenty-one years and a half* after her first symptoms. When first seen the case presented all the aspects of galloping consumption.

*(To be continued.)*

CLINICAL ACCOUNT

OF

## CASES OF TRAUMATIC TETANUS;

WITH

## FURTHER REMARKS ON THE TREATMENT OF THAT DISEASE WITH THE ORDEAL BEAN OF CALABAR.

By Eben. Watson, M.D.

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It is somewhat remarkable that since my first publication on the above subject, other two cases of traumatic tetanus have come under my care in the Royal Infirmary of Glasgow; while two medical gentlemen at a distance from this city—viz., Dr. Campbell, of Navenby, Lincolnshire, and Dr. Alexander, of Dundonald, Ayrshire—have each successfully treated a case of that disease with Calabar bean in the manner inaugurated by me, and, I believe, first published to the profession in the paper referred to above.

Three of the four cases which have occurred to me were cured. The fourth was fatal; but it can hardly be said to have been treated at all, as will appear from the report in the sequel of this paper. For the patient was admitted into the hospital almost in a dying state; he was only a few hours in the house, and actually expired about half an hour after I first saw him. It would, therefore, be quite reasonable to reject this case altogether as not treated by me, and then the account would stand thus: three cases treated by me, and two by the gentlemen named above—i. e., five cases of traumatic tetanus *all* cured by the Calabar bean. If, however, the fatal case be reckoned, there would be six cases and one death; and even that is a more favorable statement of the results of treatment in this disease than perhaps was ever published before. I have, therefore, some reason for prognosticating that further experience of the Calabar bean in the treatment of traumatic tetanus will result in establishing confidence in that drug as a rational and hopeful means of good to a class of sufferers heretofore doomed to unmitigated agony and a miserable death.

I shall now relate, in a form slightly abridged from the hospital journals, the two cases of traumatic tetanus previously referred to.

The first case was that of J. R——, aged nine years, who was admitted into the Royal Infirmary on the 8th of June, 1867. A fortnight before admission (on May 24th) he had received a contused wound on the sole of the right foot, to which poultices had been applied, but which was still raw and unhealed, about two inches and a half long and two inches broad. It was not till two days before his admission into the hospital—viz., on the 6th of June—that the patient began to complain of pain and stiffness in the lower jaw. Next day (June 7th) he was bent back in bed, and complained of pain on being touched. His mother stated that he lay on his side with his back bent like a bow during the whole of the night before his admission. When brought to the infirmary he was found to be unable to open his mouth, the surface of the abdomen was tense, and there was scarcely any motion of the chest perceptible in respiration. The pupils were slightly dilated; pulse 140, small and weak; bowels confined; skin perspiring freely; intelligence clear.

At 7.45 P.M. of the 8th June, the patient had a distinct fit of opisthotonos, which lasted for about five minutes. At 9.45 he had another similar fit, and during it he rolled over on his side. At 10.30 the treatment began with four drops of the tincture of Calabar bean, to be repeated every hour. He had several fits of opisthotonos during the night, and next day the dose was increased first to five drops, and then to ten drops, every hour. He also had a drop of croton oil in the evening, by which time it is noted that there is no difficulty of swallowing; pulse 96.

10th.—The patient slept for periods of two or three hours several times last night, and therefore only took the tincture of the bean six times. At 4.20 A.M. he had a slight fit of opisthotonos. The bowels have not been opened by the croton oil, but he has taken food pretty well, even chewing a small piece of bread; pulse 84.

11th.—The treatment was continued yesterday, and he had only a slight fit at 6 P.M. He took a dose of the tincture at 8 P.M., and slept from that time till 6 this morning, when he had half a drop of croton oil in half an ounce of castor oil, and the doses of the tincture were resumed every hour. The patient is rather more rigid than usual this morning, and opisthotonic spasms are readily induced by the slightest touch of any part of his body. At 4.45 P.M. he still continued universally rigid, and the dose of the tincture was increased to fifteen drops; but at 6, 6.45, and 8 P.M. the patient had fits of opisthotonos, the last fit being very severe, and lasting for about ten minutes. During the fits there was very profuse perspiration, and great rapidity of the heart's action. The bowels acted freely once, and the patient was able to take a little bread and meat-juice for dinner.

12th.—The patient slept well during last night, but was roused every two hours to get the tincture of the bean. He had no fits, but occasionally started. This morning the muscles generally are much more relaxed than they have yet been; pulse 80.—Evening: No fits to-day, but starts when disturbed. Has had fifteen drops every hour to-day. Bowels not opened.

13th.—Had no fits last night, and slept well, but had his medicine every two hours. Seems improving this morning.—10 P.M.: The patient has had fifteen drops of tincture every hour to-day. To-night, when asleep, the jaw was completely relaxed, so that the mouth could be opened widely without force or waking the boy. The respiratory movements of the chest were likewise more natural; pulse 68, weak, and somewhat irregular, the pupils were very much contracted, but whenever the patient woke out of sleep he became rigid as before. The administration of the bean was suspended at 9 P.M., and at midnight he had half a drop of croton oil in half an ounce of castor oil.

14th.—No fits last night. Bowels freely opened this morning. The tincture of the bean, in fifteen-drop doses, has been given every two hours till 8 A.M., and afterwards every hour. Pupils rather dilated. Could eat porridge, and even some bread, for breakfast this morning. At 3 P.M. the tincture was changed for that which had been used in a previous case, and as it was supposed to be stronger than that which the boy had been taking, the dose was diminished to six drops—a dose which had been effectual in the other case; and it should be remembered that the patients were about the same age, as well as under the same disease. This dose, however, proved insufficient in the case I am now relating; for the patient had a severe fit of opisthotonos at 1 A.M. (15th), aud remained rigid for some time thereafter. The dose was therefore immediately increased to eight drops every hour, but even that did not seem to produce the desired relaxation. The tincture formerly used was now resumed in the old dose of fifteen drops, and this was increased to twenty every half hour during the day and every hour during the night.

On the 18th the dose was increased to thirty drops every hour, with good effect. During the last four days the patient gradually recovered from his relapse, apparently caused by the sudden diminution of the dose of the 14th. He had no decided fit of opisthotonos, except the one reported on that day; but he had for a time greater rigidity and opisthotonic starts. He is reported to be much more relaxed on the 18th than he had previously been; but it is noted that rigidity, especially of right limb, occurs when the wounded foot is washed, though that operation is performed in the gentlest way—simply by pouring tepid water over it. It is then laid in clean water dressing.

On the 19th, at 9 A.M., the patient being as above reported, the dose of the tincture was diminished to twenty drops every two hours; and he was ordered four ounces of sherry daily. At 3 P.M. he had two short fits of opisthotonos, and remained afterwards very rigid all over the body. The dose of the bean was therefore again repeated every hour during the day, and by the evening he was once more relaxed in all his muscles, and was able to separate the teeth about an inch. As his pulse was feeble he had then three ounces of brandy, which were given during every night for a time.

Next day he was again rigid and starting more readily, and this state continued during the 20th, though the dose of tincture was increased to thirty drops.

On the 21st, his bowels having been opened by croton oil, I ordered the tincture to be discontined, as it did not seem to be sufficiently strong to combat the disease in this case, and I prescribed instead of it the alcoholic extract dissolved in spirit. Of this he took a dose equivalent to one-eight of a grain of the extract every hour, and after three such doses it is reported that he became much more relaxed; and at 10 P.M. he was ordered one-sixth of a grain every two hours during the night, to save waking him too often.

On the 23rd the patient continued to improve, and chewed a steak for dinner. Appetite good, but bowels again confined. He therefore had a dose of castor oil alone (half an ounce), and has continued regularly the doses of the extract prescribed on the 21st.

After this date he improved, though rather slowly, the muscles of the abdomen and back being the last in this case to give way. The dose of the extract was regularly given, and gradually increased till the patient took half a grain every two hours. This was from the 21st of June till the 3rd of July, or twelve days. The effects produced were thorough relaxation of the muscles, occasional vomiting, without any great or at all events long-continued sickness—for the boy had a good appetite all the time,—and a noteworthy change as to the action of purgatives, which at first hardly acted, though strong, and by-and-by acted plentifully, though only of usual strength; latterly none were required at all. I think these circumstances show that, as the drug overcame the tetanus, it began to exhibit its physiological action on the ailmentary canal—viz., a degree of irritation indicated by abundant secretion of mucus, and evacuation of both stomach and bowels.

On the 3rd of July, therefore, I stopped the administration of the bean entirely, and ordered an increase of stimulants and gentle nourishment. Under this treatment the symptoms just mentioned soon subsided and disappeared. In a few days he could set up freely in bed. He sleeps well at night, without even starting, and took his food with relish and ease. The wound of his foot had by this time nearly healed, and by about the middle of July he could rise from bed, and very soon run about the ward as if he had never been ill. On the 30th he was dismissed cured.

It will not, I think, be questioned by any one that the preceding was an acute case of traumatic tetanus. The patient was admitted to the infirmary on the second day of the disease, and he had already severe general convulsions. The administration of the bean was at once commenced by Dr. M'Gibbon, my house-surgeon, and henceforward the severity of the disease was mitigated though in this case its progress was not at first very decidedly checked. The reason of this was twofold. 1st. The smallness of the doses of the bean. I wished to try if we could not counteract the tetanus without throwing the patient into such a state of alarming depression as occurred in my first case; but we found that while these small doses mitigated and checked the violence of the fits, they did not altogether prevent their recurrence. Probably this was very much caused by (2nd) the severity of the disease in this case. I have elsewhere shown that the Calabar bean produces the exact counter-effect on the spinal marrow to the state in which tetanus originates. Hence when the latter is very well marked, so to speak, the former must be the more fully developed. Thus each case must be judged of pretty much by itself, and the doses of the bean proportioned to the severity of the disease in every individual in instance. In the case just related the disease was, in my opinion, of a very severe type, and hence it was that the doses of the bean given at first only served to keep it in check. They were not powerful enough to conquer it altogether, and had they been neglected, the disease would soon have shown itself in all the distressing force so familiar to those acquainted with its phenomena. This statement, as well as the fact of the controlling influence of the bean, could not be better illustrated than by reference to the case itself. On the 11th June the patient had a very long sleep, during which the drug was not given from 8 P.M. till 6 A.M., and in consequence the fits recurred, and the rigidity became worse. Again on the 14th and 19th, owing to diminution of the doses, similar relapses occurred. Lastly, the duration of the case was much shortened by the increased strength of the dose towards the end of the treatment, when the extract was used instead of the tincture. Now all these relapses could not be mere coincidences with the diminution of the quantity of the bean taken by the patient. On the contrary, I think that unprejudiced readers will perceive a direct connexion between the diminution of the drug and the relapses, while the increase of the drug and the recovery are almost obviously related as cause and effect.*

It must be acknowledged that much has yet to be done in the way of procuring a perfectly reliable form for the therapeutical administration of the bean. In the recent edition of the British Pharmacopœia, I perceive that the powder of the bean and the alcoholic extract are the only preparations mentioned. In my earlier cases, and even for a long time in the preceding one, I employed a tincture made as recommended by Dr. Frazer, of Edinburgh, by percolation of the powdered bean with spirit; but I fear that this must be a preparation of very uncertain strength. And it was owing to this doubt that I changed it for the extract dissolved in spirit towards the end of the case just related. Eight grains of the former gradually rubbed down in and mixed with an ounce of spirits of wine, form a solution or tincture, every ten minims of which contain one-sixth of a grain of the extract. The dose can thus be easily regulated and given safely in solution. I do not, however, think that this tincture would continue of equal strength, as it by-and-by throws down a muddy deposit. I have not experimented with or otherwise tested this deposit; but I always had a fresh supply of the tincture sent to the ward every twenty-four hours. I believe that such a tincture as that now described is more certain and reliable than the tincture made by percolation; and, if it be found to retain its strength after filtration of the turbidity referred to above it will be both as elegant and as permanent on keeping.

I shall now conclude with a short account of the fatal case referred to in the beginning of this paper.

On the 15th of September, about half an hour after midnight, a man, aged thirty, was brought to the hospital in violent tetanus. The ball of his great toe had been slighly cut with a rusty nail about a fortnight previously, but was now nearly healed. The wounds were skinned over, though still red. He had been quite well, only very confined in his bowels, till two days before admission, when the jaw became stiff; and in due time he had general convulsions. These were much aggravated by his transmission to the hospital, so that when seen there by the house-surgeon of the ward into which he was brought he was in a very exhausted state, and steaming with perspiration. The fits recurred almost incessantly, and were very severe. He could not swallow either stimulants or the tincture of calabar bean. The latter was soon procured, but from this obvious cause, its administration was unsuccessful.

When I saw the patient in the morning about 9 o'clock, his pulse was very rapid and feeble, his face of a livid hue, and the tetanic fits were continual, and so severe that the man himself declared he was dying. I gave him half a grain of the extract of the bean dissolved in spirit and diluted with a teaspoonful of water. He swallowed that with some difficulty, and from his doing so, I hoped that we might yet gain time for the action of the drug; but in this I was mistaken, for he died in a severe convulsion which came on about half an hour after my visit.

When I heard of the great difficulty which this man had in swallowing, I at once thought of the hypodermic method of administering the bean. But I delayed carrying it out, because the man did take a teaspoonful of fluid from myself, and I hoped he would continue to swallow a little, of the stimulants especially, until I returned, as I appointed with the house-surgeon to do after a short interval, to inject the tincture of the bean beneath the skin. I should have done so at the nape of the neck, and I intended to have introduced ten minims in two portions. I regret that I did not try this expedient at my first visit, for I never had another opportunity. I may add, however, that the hypodermic administration of this drug is peculiarly applicable to such cases as present great difficulty of swallowing; for it is both certain and rapid in its effects. If another such case were to occur to me I should employ this practice at once without delay, warned by the present case that the patient's life may at any moment be cut short by tetanic spasm of the heart itself.

It can hardly be said that the bean was employed at all in this case, and so far as its operation is concerned it proves nothing. One lesson however, may certainly be enforced from it, and that is the importance of commencing treatment with the bean in the earliest stage of this disease. The symptoms of that stage are quite characteristic and evident to one who has watched them but a few times, and no delay should be permitted before the administration of the bean. We should not wait even for the action of a purgative, desirable though that be, but ought to give the bean at once, and the purgative as soon as may be afterwards. It is only thus that we can have a good hope of success; for when once the disease has firmly established its power over the nervous system, it is difficult in all and impossible in some cases to overcome it. This fact was well proved in some of my experiments with strychnia, related in the *Edinburgh Medical Journal.* When strychnia was first given and allowed to act, I never could restore the animal; but by giving even a fatal dose of strychnia, and at the same time a certain dose of the Calabar bean, I rescued the animal from the fatal effects of the former.

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* A case of traumatic tetanus has recently been reported which was treated entirely by hypodermic injections of tincture of Calabar been. The result was quite satisfactory, and forms the seventh case treated by the bean, with only one death.

I may now add a few remarks on the post-mortem phenomena of this case, for notwithstanding all that has been written on the subject, these are still interesting when carefully observed.

1st. The man died suddenly during a fit, while his whole body was rigid, and he became at once quite relaxed and flaccid. I found the body in this state about an hour and a half after death. Cadaveric rigidity supervened eight hours after death, and it was well but not more than usually marked forty-eight hours afterwards, when the inspection was performed.

2nd. The cadaveric lividity was I think, greater than usual. The veins of the body generally were full of dark blood.

3rd. All the internal organs were examined, and found normal in structure. The heart was quite empty, there being no clots and hardly a drop of blood in any of its cavities. The walls of the left ventricle were firm and thick, as if contracted towards the septum; its length was not diminished, as might have been expected from the state of the heart in normal contraction. The right ventricle was in a very similar state; its cavity quite empty, and its walls thicker and firmer than usual, but not so much so as those of the left ventricle. The shape of the latter was rounded, not like a ball in all its diameters, but from side to side like an arch or tunnel; while the right ventricle was sharpened into a ridge at its free margin. The auricles were both contracted upon their respective ventricular openings, and did not contain any blood In fact, the heart was precisely in such a state as might have resulted from a tonic universal contraction of its walls, continued so long as to cause death; and though this is not the common cause of death in tetanus, yet it undoubtedly sometimes occurs. I may add that in the case of strychnia poisoning which I inspected long ago, when assistant in the infirmary, the heart was found in the very same state.

The lungs were very much congested, and the brain somewhat less so. The vessels of the lower part of the spinal sheath were much injected; but neither by the naked eye nor yet by the microscope could I detect any abnormity in the structure of the spinal centres, and though I carefully examined the branch of the plantar nerve which supplied the wounded part of the foot, the result was similarly negative.

Newton-terrace, Glasgow, Oct. 1867.

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## ON
## VARICOSITY AND ULCER IN THE LOWER LIMB.

By John Gay, F.R.C.S.,

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I am about to call the attention of the profession to varicosity and ulcer in the lower limb, the "Castor and Pollux" of surgery. From time immemorial the varicose ulcer has held its own. Paré, Sir Everard Home, Sir Charles Bell, Sir Benjamin Brodie, and most other writers who have treated of varicose veins or ulcers, have, from the fact of their common coincidence in the lower limb, linked them together in the relation of cause and effect, and set the seal of surgical authority, with the superscription "varicose" on almost every ulcer so associated, and no one has yet ventured to question the genuineness of the article. From the accounts given of the said ulcer, I am inclined to think that its recognition has not been based so much upon any defined set of features supposed to be diagnostic of it as upon the fact of its being met with on a varicose limb; for in hardly any two descriptions given, except where a suspicion of plagiarism can scarcely be avoided, can the symptoms be said so to tally that any very striking agreement is to be traced between them. And it speaks well for the narrators; for it really is a hopeless task, from a large number of such ulcers, to attempt a generalisation of their symptoms, objective and subjective, so as to eliminate a group by which the alleged varicose ulcer can be distinguished from ulcers that obviously have no affinity whatever with varicosity. There are, in fact, to be met with on varicose legs varieties of ulcer that would delight the most aspiring nosologist; but their general resemblance to other ulcers on legs *without* varicosity is so great that he would, I think, be sorely puzzled to supply a test by which to distinguish the ulcer in question otherwise than that of its coexistence with varicosity; and then the question of consequence or coincidence would still be open to doubt. In short, the first difficulty to be overcome in an attempt to study the quasi-varicose ulcer is, in my opinion, just that which the sagacious Mrs. Glass suggests in her famous receipt for cooking a hare.

Through the kindness of Dr. Randall, of the St. Marylebone Infirmary, and other friends, I have had opportunities of carefully examining some cases of varicosity of the lower limb, with and without ulceration, and I may venture to affirm that these examinations have opened up some new facts which go far, in my opinion, to modify our preconceived notions as to the pathological relationship of these diseases. Of 19 cases which I dissected, I met with 9 in which there was simple external varicosity, 10 in which varicosity was associated with discoloration of the skin and ulcer, and 1 in which there was varicosity, but no skin discoloration, or, as I have ventured to term it, "bronzing," in order to express its peculiar tint.

Now my first remark is, that although there was a variable amount of varicosity in these cases respectively, there was an absence of ulceration in a moiety of them; and that in those with which ulceration existed, the severity of the ulcerative process did not correspond *pari passu* either with the extent of the varicosity or the degree to which the veins were affected by the disease. On the other hand, the least amount of vein-disease—that of a single vein—was met with in a case of one of the worst forms of ulcer: not the worst, for in this case the work of destruction had extended over the greater part of the leg; whilst the most widespread varicosity was met with on a limb entirely devoid of any other apparent disease.

The second remark is, that superficial varicosity, or varicosity of the saphenous branches, was found to be, *in most of the cases*, a complex disorder; and that *with its complications*, those other changes of the skin, bronzing, induration, and ulcer, were in much more constant correspondence than with varicosity.

Now, in 2 cases external varicosity existed alone: none of the *sub*-aponeurotic structures were in anywise diseased or disturbed. In the other 7, with external varicosity there *were* other complications, but no other disease of the skin. These complication were as follows:—In 1 there were beaded strings of coagulum in the varicose veins; in 2 there was dilatation of the intra-muscular veins; in 3 the deep trunk veins were dilated; in 5 there were coagula in the deep trunk veins, in 2 instances *obstructive;* whilst in 2 others the arteries were *slightly* diseased.

But this statement does not represent the condition of the parts logically. It only shows that, *with superficial varicosity, there are other serious lesions affecting both arteries and veins, deep and superficial*, which cannot be ignored in discussing the relation to it of associated diseases.

Now the several conditions of the various vessels in these cases were differently combined; and it is to these especial and individual groupings that the greatest amount of importance must be attached. Although coagula were found in the trunk veins in 5 out of the 9 cases, these were, as I have said, *obstructive* in 2 only; and of these cases in 1 only did the obstruction affect the *deep trunk* veins, the obstructed vein being in the other case but *an intra muscular branch.* In 1 only *was there thrombose obstruction of the deep venous trunks with superficial varicosity;* and, be it further noticed, in *this* as in the other thrombose case, *as well as in* 1 *beside, in which an old clot in the deep veins had ceased to be obstructive, there was co-ordinate dilatation of other of the trunk comitial veins.*

It appears, then, that *in no one of these cases* in which varicosity existed alone, was there coincident obstruction of deep trunk veins, although there were those especial signs of derangement of these vessels and their contents in most instances, and of the arteries as well in 2, as would lead to the conclusion that the general circulation had been subject to very considerable and long-standing embarrassment.

In relation to ulcer the bearing of these remarks is this: that varicosity may exist with mere *embarrassment of the whole vascular system of the limb, and yet without ulceration.*

I shall now go a step further, and give a summary of the condition of the vessels of the leg in 10 cases, of which varicosity was associated with bronzing and induration of the skin in 1 case, and with ulcer and discoloration in the other 9. The former I shall not further consider. It arose from capillary congestion, and was associated with obstructive cardiac disease and great dilatation of the deep venous trunks.

In 3 of these coagula were found in the trunk of the *external saphenous vein.* (I may here explain that, from a large number of dissections, I have come to the conviction that the anatomy of that vessel, as given in works, is, *in one most important point*, incorrect. We have all, I think, been taught that this vein takes its course obliquely along the outside and back of the leg to the popliteal space, where it penetrates the fascia to reach the popliteal vein. In a large number of dissections that I have made for the purpose of clearing up this point, I have not found this course taken by the vein *in a single instance.* It invariably pierces the deep aponeurosis *below* the calf of the leg, immediately behind the junction of the gastrocnemius, and completes its course *below* the aponeurosis, and *sometimes* even within one of the bellies of the muscle itself. It was in portions of the external saphena adjoining this foramen that these clots were found.) In 6 there was obstruction of the deep trunk veins by coagula. In 3 there was dilatation of the deep trunk veins. And in 6 there was arterial disease, more or less severe.

I must again collate these cases, so as to present the distinct groupings of the several morbid phenomena.

In 1 case the external saphenous vein was obstructed, with disease of the anterior and posterior tibial arteries. In 2 other instances, in which the external saphenous veins were obstructed, there was also obstruction of the deep trunk veins; with, in 1 of these, dilatation of deep trunks, and arterial incompetency. In 3 others there was *deep* trunk obstruction, with like arterial incompetency; with, in 1 of these also, dilatation of deep trunk veins.

(It will be understood that in speaking of dilatation and obstruction of deep trunk veins in the same leg I am speaking of different conditions of *two* comitial veins.)

In one case, already referred to, in which a very large proportion of the integument of the leg had been eaten away by deep ulceration, all of the main arteries were found coated with earthy matter, and had become, as it were, functionally obsolete. In this case, which Mr. Hopgood injected with wax for me, I was interested to observe the *unusual* vascularity of the remaining tissues as far as the arterial system was concerned. The diseased vessels sent off an unusual number of healthy branches, which supplied the tissues which the ulcer had spared, and these anastamosed freely with each other in the course of their ramifications.

Now the general conclusion from the second series of dissections is that, *unlike the former*, venous obstruction, especially of trunk veins, superficial and deep, was, in several cases, found to be associated as well with arterial incompetency. Contrasting this with the conclusion arrived at from the details of the first series, and remembering that there was no ulcer in the former, but ulceration with bronzing and induration in all the latter cases but one, and that an unimportant one, it is impossible, I think, to avoid the further inference that *ulceration is not a direct consequence of varicosity, but of other conditions of the venous system, with which vari-*

*cosity is not unfrequently a complication, but without which neither one of these affections of the skin is met with*—conditions which involve obstruction of the trunk veins, deep and superficial, either from impediments on the venous side or incompetency on the arterial, or from both causes combined.

I think then that, pathologically, the doctrine of the "varicose ulcer" does not hold water; that, to reiterate my conclusions, ulceration, when it exists with varicosity, but without other complication, is a coincidence, and not a consequence of the vein disease; that, when associated with induration and bronzing of the skin, it is the direct result of serious obstruction of the venous trunks, and this alone, whether associated with varicosity or not. The converse cannot, however, be alleged—namely, that serious embarrassment to the circulation through the trunk veins is *invariably* followed by these affections of the skin. The anomaly, which does not admit of explanation here, does not invalidate the foregoing conclusions.

I think we have now reached a vantage ground from which we can contemplate the act of ulceration as it is seen, in all its phases, on apparently its most cherished region, the leg. But, in order to do so profitably, we must turn to the results of clinical observation and experience. According to these I would now ask—(1) Does varicosity seem in any way to favor the production of an ulcer, or (2) retard its healing? To these questions I reply, "not appreciably in either case."

Ulceration, then, as associated with venous embarrassment, must, it may be assumed, be directly related to the nutritive function as influenced by grave changes—congestion and blood stasis—in the veno-capillary system: first, with arterial competency, and, second, with arterial incompetency. Venous congestion is, however, the immediate and essential antecedent of ulceration; and this fact supplies a reason, perhaps, why the leg, and of the leg a certain portion only, is so prone to become its seat. It is that in which the venous circulation is, perhaps, submitted to greater difficulties than in any other parts of the body. Its veins have relatively the least amount of aid from the ordinary forces and appliances of the circulating system.

I cannot but think that to this cause both the proneness to ulcer in this especial portion of the limb, and its disinclination to heal, are alike due, and not to any coexisting uncomplicated varicosity.

The type of a simple leg ulcer, the ulcer that is free from all morbid complications, independent of such as are in operation within the confines of the ulcer tissues, is, perhaps, the "broken shin." There are few surgeons who have not had their ingenuity puzzled and their temper tried by the rebelliousness of this somewhat uninteresting surgical trifle, and who have not found it to persist in keeping open until the venous currents of the limb are facilitated by resort to the leg rest. It is, it is true, a traumatic ulcer; but it does not essentially differ from that other ulcer which begun in pustule, the evidence and result of some constitutional injury, excepting that the latter, perhaps, is still more indisposed to be cured. Both are equally related in the character of direct effect to that exceptional, but still normal, condition of the venous circulation to which I have adverted; but made somewhat to vary by the intermediation, in the latter instance, of a secondary agency in the form of constitutional disorder. Thus, in obedience to a variety of secondary agencies, this species of ulcer may assume corresponding forms, and be still nothing more than the simple ulcer.

The agencies of a secondary character just alluded to, by which these varieties are determined, are:—Inflammation, irritability, neuralgia, idiosyncrasy, certain depraved states of constitution, such as struma, syphilis, or cancer; certain poisons, animal and other; and others which I need not here specify.

And such ulcers *will* form upon legs *with* or *without* varicose complication, and, in either case, equally retain their natural characteristics. The act of *ulceration* in such cases, if properly construed, may be said to be the *way of healing* under certain difficulties rather than the way of *ulceration*. Still it is a "bonâ fide" ulcer, and will yield to rest and other appropriate local and constitutional remedies, equally on a varicose as on an otherwise healthy limb.

But to proceed. I have referred to the "simple" ulcer as *the ulcer without complication, except of a purely constitutional character, beyond the limits of the tissues immediately concerned in the act of ulceration.* I now come to the ulcer of the second class, the ulcer associated with varicosity, the type of which I may describe as an ulcer in the midst of dense and often discolored skin, literally fringed with varicose veins at its lower margin, and usually with *one* or *more* making their escape from beneath the upper; the veins in such a case being advanced in degeneracy as they approach the confines of the ulcer, and sometimes becoming a part of the ulcer surface, and sharing the fate of its tissues—the ulcer with "excess of action" of Syme. What is the relation of the ulcer to the varicose veins in such a case as this? The common response would be that it is essentially that of sequence or effect. I must, however, dissent from such a conclusion, and I base that dissent, first, upon the pathological data which I have already supplied, and to which I must again recall attention. I stated that in such cases, in the dead subject, other apparently intermediate morbid conditions are met with, without which this peculiar form of ulcer has not been found to exist—namely, serious obstruction to the circulation through the deep trunk veins. Now, in the *living* as well as in the dead subject we find constant examples of severe varicosity without skin discoloration or ulcer; and, on the other hand, the worst ulcer with but a comparatively trifling amount of varicosity, thus negativing, as far as it goes, the theory of that mutual dependence which has been supposed to exist between ulcer and varicosity; whilst, as I have said, in the dead-house, on the other hand, I have found a constant and a close relationship between these skin diseases and the states of the vascular system that have been described. These facts still further invalidate the doctrine of a "varicose" ulcer, and connect an ulcer of the kind referred to, albeit with varicosity, with quite another pathological source—viz., trunk venous embarrassment.

In the next place, how are we to explain the fact that the portions of veins in the most advanced state of varicosity are found constantly in close juxtaposition with the ulcer? A few facts will, I think, suffice to show that the veins are thus injuriously affected by the ulcer and its processes, and not the ulcer, as is ordinarily supposed, by the veins (although I am far from denying that at this stage of the respective diseases they do not exert an influence upon each other mutually deleterious); and for this reason, that the condition of the vein is always in exact accordance with the particular condition of the tissues that surround the breach of surface. From notes I have made, I find the following instances :—

1. An ulcer in the interspace between two veins, but encroaching on both. Portions of these veins, not elsewhere diseased, were diseased in *contiguity with the ulcer surface:* one was softened and filled with clot-pulp; whilst the other was in part destroyed, leaving its mouths open on the ulcer.

2. A vein healthy in other parts; but, *beneath an ulcer*, its coats were softened, and its cavity filled with clot.

3. A varicose vein running from beneath an ulcer, and surrounded by discolored and indurated tissue. The outer coat of the vein had become consolidated with this tissue, and was in the act of disengaging itself from the inner coats; whilst these had softened into a kind of fragmentary tissue, and become incorporated with clot. A segment of the vein above the hardened tissue was much more attenuated than the rest of the vessel.

4. A varicose vein beneath an ulcer with a margin of indurated skin. As in the last instance, the vein just above that margin was excessively attenuated; below it, contracted whilst beneath the ulcer itself it was completely disintegrated. And I think these observations accord with what an attentive examination of these conjoint diseases will daily attest, and go to substantiate the proposition that it is the vein that is injuriously affected by the ulcer, and not the ulcer, at least not to an equal extent, by the vein.

But once more let me appeal to the experience of those who, adopting the theory of the "varicose vein," have naturally looked to the destruction of the vein by deligation, or other means, as the inevitable remedy for the ulcer.

There are few of us who cannot remember, in the course of hospital practice, the frequency with which the problem "Given an ulcer and a varicose vein" was solved by the postulate, "the ligature," and with what gratification the cicatrisation of the ulcer was hailed in almost every case as its seemingly categorical result. But there are few of us, I think, who, having had opportunities of following into after-life cases in which these results were so obtained, have not had reason for thinking that, in most, the advantage was shortlived and treacherous. The ulcer and varicose veins have both reappeared. Are we satisfied that even the temporary benefit was due to the ligature? I confess I am much more disposed to attribute it to the rest, and the other means that were simultaneously employed; and amongst them, perhaps, not in small degree to the counter-irritation set up by the operation on the vein; for Sir Charles Bell in his "Institutes" tells us that "ulcers of the leg are to be cured by a blister applied on the inner side of the thigh just above the knee."

I have now spoken of two classes of ulcers—first, the simple; and, secondly, the ulcer constantly affiliated to varicose veins, but which, as I have endeavored to show, is due to deep venous embarrassment; and which I propose, on that account, to call the "venous ulcer."

There is yet another species of ulcer to which I must allude, also at times associated with varicosity, but which has, in its worst forms, escaped the designation "varicose." It is the ulcer that I have found connected with arterial incompetency, and which I therefore propose to designate the *arterial* ulcer. It is a very characteristic ulcer. It is surrounded by dense skin, of a pink or pale hue. Its size varies from that of a small and somewhat superficial ulcer, with a welted edge—as it is often seen, creeping along the ulcer behind the inner malleolus and tibia,—to an ulcer pervading the whole leg, leaving a few islands of *dense*, thickened integument, and making its way gradually through the aponeurosis into the deeper structures. Such an ulcer results from impairment of nutrition, through defective supply of arterial blood; and the *welt*, as well as the indurated integument, show various degrees of such impairment short of *vital extinction*. The welt, as commonly seen in the *least* severe of this class of cases, is, in all probability, due to nutritive efforts almost at the *confines* of *arterial* circulation. It is the ulcer with "defect of action" of Syme. I need not say that this is a still more formidable form of ulcer; and is, as far as any remedies that have hitherto been devised, incurable.

To recapitulate. I have attempted to show, in the course of the foregoing remarks and observations:—

1st. That there are no substantial grounds for accrediting ulcers, on legs *with* varicose veins, to the diseased veins, in the relation of effect; that, in fact, the varicose ulcer, in the sense in which it is usually understood, is a fiction.

2nd. That when ulcer and varicosity co-exist the veins are much more likely to suffer injury from the ulcer, than the ulcer from the veins. In fact, the veins cannot be brought within the confines of the ulcerative process without suffering in common with the other ulcer tissues.

3rd. That ulcers of the leg are, in relation to their pathological genesis, divisible into three species:—

1. The *simple* ulcer; that in which the morbid processes are limited to the confines of the tissue directly engaged therein.

2. The *venous* ulcer; most frequently with "bronzing" of the skin; dependent upon obstructive disease of the trunk veins, superficial or deep. And

3. The *arterial* ulcer, generally without discoloration, which is due to incompetency of the arteries, from disease of their coats.

In some cases, however, the two morbid changes which belong to the second and third classes are conjoined. All of these ulcers are capable of being more or less varied by secondary agencies, by which subordinate varieties are determined.

By way of conclusion, I must make a few remarks on the treatment of these ulcers, which, however, becomes moderately simple if based upon a recognition of their respective pathological bases, and of the agencies by which they become *secondarily* modified.

There is one rule which is universally applicable—namely, that rest is an essential part of their treatment, with the foot elevated above the pelvis in the ulcers of the first and second classes, and on a level with it in those of the third.

First with respect to the *simple* ulcer. There are no marked peculiarities in its condition that cannot be reconciled with *action* on its immediate confines, subordinated to constitutional derangement. If it be acutely inflamed, bleeding is required by leeches or scarification (the latter across the edge of the ulcer is an excellent plan), hot applications, constitutional treatment, purgatives, calomel when the biliary system is deranged, and opiates. If the inflammation be subacute, and especially if the tissues be thickened and the edge welted, blisters should be applied over the surface and the affected border. It may safely be alleged that no one remedy is capable of so much general benefit as the blister, for which we are, I believe, indebted to Mr. Syme. Iodine or iodide of potash is an admirable remedy, especially if the ulcer has invaded the periosteum and occasions severe nocturnal pain. Irritability must be subdued by opium, with quinine or iron, and the use of a *strong* solution of nitrate of silver to the surface. If neuralgia exist, the offending nerve-filament must be tracked out and divided, as Mr. Hilton recommends, and appropriate constitutional remedies administered. If it be combined with constitutional weakness, tonics and change of air, with generous diet, are required; and if with struma or syphilis, the remedies appropriate to these diseases. If the ulcer persist after the subjugation of secondary states or conditions and a certain period of rest, the *surface* should be destroyed by some powerfully destructive agent. The strong solution of the pernitrate of mercury twice or thrice applied, at intervals of two or three days, to certain sores that are thus found to be peculiarly obstinate, will seldom fail to induce cicatrisation. And here I may remark, as to the value of this remedy when applied to certain specific sores, as syphilitic lupus, and especially secondary syphilitic *ulcers about the throat and palate*, that it seldom fails *at once* to change their character. To these parts however, it must be carefully applied.

With respect to the *venous* ulcer, I know but of one mode of inducing permanent cicatrisation—namely, by those incisions at the edges to which I first drew the attention of the profession some years since; by which the veins are freely divided as well as any dense tissues which by maintaining a state of morbid tension, counteract the healing tendency. I have now practised these incisions on a large number of cases, and so have many other surgeons—amongst whom I may mention Mr. Henry Smith,—and with a constancy of success that encourages me again to recommend them. But in all these cases the varicose veins above the ulcer should be obliterated by the ligature, *for their own sakes;* for they are functionally ruined, and worse than useless.

The *arterial* ulcer is incurable by any known means; and amputation is a resort full of risk, as the ulcer is so commonly associated with renal disease. If a fitting case offered itself, instead of amputation, I should propose tying the popliteal artery, with the object of closing up the diseased arterial trunks, and of obtaining a new arterial system by means of those abundant new branches and their ample anastomosis, which in the injected case of which I have spoken appeared to be quite equal to, and even prepared for such an emergency.

[The foregoing paper—a portion of the Lettsomian Lectures for 1867 which for want of time Mr. Gay omitted in that course—was read recently at a meeting of the Medical Society of London.]

Finsbury-place, April, 1868.

ILLUSTRATIONS

OF

# IMPAIRMENT OF THE POWER OF INTELLIGENT LANGUAGE,

IN CONNEXION WITH

# DISEASE OF THE NERVOUS SYSTEM.

By John W. Ogle, M.D., F.R.C.P.,

Physician to St. George's Hospital.

Although much has of late been advanced by various authors, both English and foreign, which gives support to the supposition that the power[*] of using articulate language is not only more immediately connected with the *left* cerebral hemisphere, but even specially linked to one (comparatively small) portion thereof; yet so many exceptional cases have been noted, of which the teaching fails to corroborate or even to aid the above supposition, that it must be considered, I think, doubtful to what extent we are justified in regarding integrity of intelligent expression as positively and invariably dependent upon (or, so to say, synonymous with) integrity of this particular locality of the brain.

I cannot but think it desirable that, for a fuller understanding of the matter, not only should new observations be made, but also that, as much as possible, all cases in which defects of language, spoken or written, or other modes or symbols of expression, however slight and apparently insignificant,[†] should be collated, studied, and criticised at greater or less length. The recent trial which has occurred in the Probate Court (Peacock *v* Lowe) shows also how neccessary it is that we should study this subject with reference to impairment of the intellect or other faculties of the mind; and I would suggest this study as a special object of attention. With the view, therefore, of helping to render the literature of the subject[‡] more full and complete, I have drawn up the following cases, in part from the records of St. George's Hospital, in part from my own practice, and in part from the observations by others who have written in connexion with the subject of diseases of the nervous system. I have as much as possible confined myself to cases in which post-mortem evidence of the change undergone by the nervous structures had been obtained.

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[*] I purposely abstain from using the term "faculty" of language.

[†] It is of course well known that such defects may be confined to proper names only, and may be only occasionally noticeable; or it may concern the names of common objects around, and be habitual: and that it may or may not coincide with extreme want of memory of (no doubt chiefly contemporary) events of every kind, and, accompanied by rambling incoherent thoughts, may, so to say, form part of the expression of a general intellectual incapacity or feebleness. I suppose there can be no doubt that, as most authorities on the phenomena of the mind determine, thoughts or ideas and words are complementary, mutually or reciprocally necessary, and that one cannot exist without the other; "speech and cogitation being the relative conditions of each other's activity."

[‡] Although I do not propose to give anything like a historical sketch of the question of so-termed aphasia, yet it may here be useful to give a brief summary of the most important papers which have appeared among us on the matter.

The cases related are of several varieties. They will illustrate imperfection of language associated with disease both of the left and the right cerebral hemispheres, as verified by post-mortem examination; they will also exemplify defects of

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I will, therefore, epitomise the observations of Sanders, Banks, Robertson, and Gairdner. The interesting cases and observations of Dr. Hughlings Jackson in the London Hospital Reports, THE LANCET, and elsewhere, are, no doubt, known to the reader.

Dr. Sander's remarks, read before the Edinburgh Medical and Chirurgical Society, comprehend the definition of the term "cerebral faculty of speech'" He enumerates the peculiar features and combination of circumstances which constitute the loss of speech, and distinguishes two varieties—1, the amnesic, owing to defective memory of words, and therefore to some extent a psychical defect, in which the inability to write as well as to speak is lost; and 2, the ataxic, where the loss is due to lesion of a supposed cerebral apparatus of co-ordination for the movements of articulate language: a defect in nervous mechanism only, power to write being retained. He then passes on to the pathology of aphasia, alluding to the observations of Auburtin and the dissections of Broca, which within the last five or six years have renewed the interest in the subject, noting the discussion in 1865 in the French Imperial Academy of Medicine (see Bulletins de l'Académie), also to Dr. Hughlings Jackson's communications in the London Hospital Reports, vol. I., and to Trousseau's Lectures. He goes into the Literature of the question of the cerebral seat of the faculty of speech which was raised in 1825 by Bouillaud, and points out in a very clear manner that there are three periods in the history of the special opinions relating to it—viz., the 1st, in which the faculty of speech was localised in the anterior lobes of the brain; the 2nd, in which lesion (in cases of loss of speech) was thought to be invariably in the *left* hemisphere of the brain; and the 3rd, in which aphasia was thought to be dependent on lesion of the posterior third of the external or inferior frontal convolution on the left side (étage surcilies on frontal inférieur of Gratiolet). He briefly alludes to the opinions which have been advanced that there is no special lesion known to be connected with aphasia. He then details a case of amnesic aphasia, in which there was right hemiplegia, softening of the external or inferior left frontal convolution as well as softening above the posterior extremity of the Sylvian fissure being found; the latter he supposes to account for the great loss of memory experienced by the patient.

Dr. Banks, in his observations, republished from the *Dublin Quarterly Journal of Medical Science*, February, 1865, reviews the literature and present state of our knowledge of the subject; noting the adoption of the various terms which have been used to indicate what most agree to term aphasia; referring to the various writers in England on disordered faculty of speech from cerebral disease, as Crichton, Osborne, Graves, Winslow; and abroad, as Bouillaud, Falret who arranges and classifies the various cases which present disturbance of language and memory, and Jaccoud, who considers the affection under five forms, including those dependent on—1, paralysis of the tongue; 2, those caused by absence of co-ordination in the centre of motive power; 3, those caused by interruption of voluntary transmission; 4, those due to amnesia of words; 5, those due to sluggishness. He quotes cases and remarks by Trousseau, Lasegue, Dax, and Broca in favor of the localisation of speech in one part of the brain; and, again, remarks of Charcot, Vulpian, Farge, &c., on the other side. Before concluding, he relates a case in point which he saw in consultation with Dr. Kidd, of Dublin, and notices the importance in a medico-legal point of view of considering the testamentary capacity of persons who have had attacks of apoplexy with aphasia, or of aphasiacs without apoplexy or paralysis. The question of loss of articulate language in relation to the mental capacity of the patient and his testimentary capacities will, I would suggest, no doubt, prove the most important of all questions connected with that subject.

Dr. Robertson's remarks appeared in the *Journal of Mental Science* for January, 1867. After alluding to the conclusions arrived at by some that the cases of aphasia which latterly have been placed on record are evidence that the organ of the faculty of articulate language has now been discovered (*in or near* the external frontal convolution of the left hemisphere), the author proceeds to relate three cases observed by himself of hemiplegia on the right side, in which aphasia occurred. He shows from the analysis of the condition of forty non-aphasic hemiplegics that in such cases the faculties of the mind generally suffer in a greater or less degree, the memory, reasoning faculty, emotional powers, and will being all involved. He afterwards details the views held by certain philologists and metaphysicians on the association of thought and language (Mill, Max Müller, D. Stewart, Schelling, Hegel, Des Cartes), who agree in supporting the intimate and necessary union of thought and language; and concludes that if thought, in the sense of reasoning, is carried on in the minds of aphasiacs, "words are likewise present at the same time" therefore the inability to speak is not in most cases occasioned by forgetfulness of words—in other words, not amnesic. Certain cases, how ever, occur in which words are really forgotten; but then in these cases the want of memory is not confined to words. He enters into a consideration of the anatomy and physiology of certain parts of the brain, by which he seeks to explain the cases in which the same few common monosyllables are constantly spoken in reply to questions. He then alludes to those cases in which words that cannot be spoken generally are spoken under the influence of emotion, and he elucidates this peculiarity by reference to the supposed fact that there are many distinct sets of fibres for transmission of independent sensations and motor impulses, and to the opinion held that the emotions are directly associated with sensori-motor ganglia. He also alludes to those cases in which the patients, whilst aphasic, retain the power of expressing their ideas in writing, which he attempts to explain. He then passes on to consider the results of post-mortem examinations of brains of aphasic people, observing that right hemiplegia very generally accompanies aphasia, and that, with one or two exceptions, no defect in articulate language has been noticed in cases of *left* hemiplegia. Much less certainty, he remarks, exists when we inquire in what part of the left hemisphere the pathological change is situated. In those cases in which no lesion of any kind was found, he supposes that some obscure morbid alteration actually existed. He observes that when morbid structure has been noticed, the medullary or conducting substance has always been involved, and never the grey matter alone. This seems to support the view which regards the essential defect as one of transmission, as does also the fact that in most cases a loss of motor power (right hemiplegia) existed. He opposes Dr. Moxon's explanation of the apparent unilateral action of the conductors for articulation, supposing as he does that the educational association of movements only takes place on the left side, that on the right side remaining undeveloped: and suggests that when there is hæmorrhage or softening of the right hemisphere, the conductors of language generally escape, possibly on account of some slight and hitherto unobserved anatomical difference in the vascular arrangements of the two hemispheres. He says: "It follows that there is no necessity for supposing the existence of an organ of language, as a defect in transmission along with general weakening of the mental faculties is competent to account for the various phenomena hitherto observed in the sufferers from aphasia.

Dr. Gairdner's observations are embodied in a paper read before the Philosophical Society of Glasgow, March, 1866, on the Function of Articulate Speech, and on its Connexion with the Mind and Bodily Organs. He considers at length the subject of the philosophy of language generally: proceeds to indicate the various conditions under which aphasia may be found, and its varieties, showing that it is mainly connected with right hemiplegia when any hemiplegia exists; pointing out that the aphasic state is in no way allied to paralysis of the muscular parts concerned in the mechanism of articulation, and giving the particulars of two or three cases in his own practice and that of others; noticing instances in which explosive or interjectional speech existed. He shows that we have only very imperfect knowledge of the actual state of mind of the aphasic, inasmuch as the destruction of the leading channel of intercommunion of mind presents an almost impassable barrier in the way of an understanding; but quotes several cases (especially one of the highest interest from the essay of Dr. Cheyne, on Partial Derangement of Mind in supposed Connexion with Religion, quoted from Dr. Beddoes' Hygeia), which prove that in the simple form of aphasia there is not necessarily any immediate diminution of the general intelligence, though in the *majority* of cases there is a loss of general intelligence, "not only because the affection is usually combined with paralysis and with more or less complicated disease of the brain, but also because I find it difficult or impossible to conceive of a state in which the symbols of thought shall be permanently lost, and thought itself sustain no injury." Dr. Gairdner publishes a case of aphasia (which was read to the Medico-Chirurgical Society of Glasgow, April, 1866), the patient being the subject of epileptic attacks. After death *no local lesion of the brain was found*, but slight granular deposit in the smaller vessels of the pia mater.

I would also draw attention to the paper, containing a series of interesting cases, by Dr. William Ogle, in vol. ii. of the St. George's Hospital Reports, to which I shall allude later on, and to a "Statement of the Aphasia Question," together with a report of fifty cases, by Dr. Seguin in the *Quarterly Journal of Psychological Medicine*, edited by my friend, Dr. Hammond, vol. ii. No 1. Both these communications have appeared since this collection of cases was drawn up.

language in cases of right and left hemiplegia in which no such examination took place, and also cases in which after-death examination showed that no tangible and visible cerebral lesion whatever had occurred, or that such lesion was more or less *general*, and by no means limited to any one locality. In many of the latter no hemiplegia or other paralysis existed. I shall not, of course, include cases in which defect in expression of ideas was the result of coma, or of chorea, or of drunkenness, &c.; though I shall notice some cases in which it appeared that the defect was connected with paralysis of the tongue.[*] In some instances, no doubt, the defect of speech was owing to imperfect articulation by reason of paralysis of the lips,[†] or other organs of vocalisation.

Those cases which illustrate the association between defect of language and lesion of the left cerebral hemisphere (that association with which the profession has now become most familiar) I will postpone until I shall have adduced those which are of more rare occurrence, and, therefore, more interesting.

I will begin by relating cases in which

### *The right side of the brain was the side diseased, and this alone, as determined by dissection, or assumed to have been so according to the symptoms.*

CASE 1.—Benjamin B——, aged forty-eight, was admitted into St. George's Hospital on the 16th of October, 1861, with hemiplegia of the *left* side, the sensibility of the skin being entire. He was quite rational, and said that he had had a fit the day before. The muscles of the face were unaffected; but the tongue was protruded to the left side. Later on giddiness and loss of power of sphincters supervened; and on the 22nd, though he had regained some use of the arm, his manner was confused, and his *articulation less clear*. "His manner became more weak and lachrymose," and his speech became *more indistinct* Afterwards he rallied, so as to ask for what he wanted. Subsequently he became worse, cried a great deal, and "seemed to lose all power and will." An abscess formed on his hip; and later on he became drowsy, then unconscious, and died on the 16th of December.

After death the dura mater was found thickened, and much fluid was found in the lateral ventricles and under the arachnoid. The remains of two apoplectic clots were found in the right cerebral hemisphere: one, indicated by rusty discoloration, beneath the surface of the corpus striatum, and behind its centre, of the size of a horse-bean, and surrounded by softened cerebral substance; the other, anterior and external to this, between the corpus striatum and the Sylvian fissure, was larger, and also of a rusty color, the surrounding brain *not* being softened. Examined by the microscope, the smaller vessels were found to be natural; the larger ones very fatty. The large ones at the base of the brain were natural. Nodulations were found on the surface of one of the lateral ventricles, in connexion with which the case was described in the *British and Foreign Medico-Chirurgical Review*, April 1865, p. 305.

CASE 2.—A woman, aged seventy-nine, complained of pain in the right side of the head, with numbness and formication of the *left* arm and leg. There was some *impediment of speech*. She became hemiplegic on the *left* side.

After death softening of the right cerebral hemisphere was found. No other organic alteration was found. (Quoted from Copeman "On Apoplexy," p. 54.)

CASE 3.—A gentleman, aged fifty, subject to attacks of giddiness and headache, attended by loss of recollection and *impaired speech*. The attacks subsequently became more permanent, and he had violent paroxysms of pain, at one time relieved by arsenic. Mania-like attacks and then epileptic seizures came on, and then attacks of stupor. He died after an apoplectic fit.

After death a large coagulum of blood was found in the substance of the right hemisphere; and the whole arterial system of the brain was found much thickened and "ossified." No other morbid appearance in the brain.[*] (Quoted from Abercrombie's "Researches on Disease of Brain," 1834, p. 242.)

CASE 4.—A gentleman had a blow on the back of the head. Several days afterwards he had much pain at the same part, where the scalp was tender. Subsequently, along with other symptoms, he lost the use of the *left* side of the body, and *nearly all the power of speech*. He became drowsy, and died.

After death a large quantity of blood was found on the posterior surface of the *right* cerebral hemisphere, which ran between the convolutions: and much serum was effused beneath the cerebral and spinal membranes generally. (Quoted from Bright's "Reports of Medical Cases," vol. ii., p. 268.)

CASE 5.—William W——, of short stature, but not of full habit, enjoyed good health until the beginning of June, 1829, when he frequently lost his sight several times a day, so that suddenly, as he walked along the street, he was in total darkness for a few minutes. Towards the end of June he fell down unconscious, and had all the symptoms of apoplexy. Having been bled and cupped, he recovered his senses the next day; but both the arm and leg of the *left* side were completely paralysed, and his *speech affected*. Sickness and giddiness occurred later on; for which he was again treated—purged, blistered, and cupped—with relief. He recovered the use of his limbs eventually, and in the middle of September was dismissed, having no complaint but a little unsteadiness in his walk. (*Op. cit.*, vol. ii.; p. 323.)

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[*] There is at present in St. George's Hospital, under the care of my colleague Dr. Wadham, a patient who is left-handed and has hemiplegia on the *left* side, and who cannot express himself by words, but can do so by writing on a slate, and by signs and gestures. He is unable to protrude the tongue, and scarcely able to move it within the cavity of the mouth, and, though he eats much, swallows very slowly. It seems doubtful to what extent this immobility of the tongue is connected with the want of spoken language. He is convalescent from very serious brain disease, during which, however, he could always express his liking or disliking of things done to him, or of his food, &c. Dr. A. Robertson has suggested that possibly left-handed people, when aphasic, have their hemiplegia on the left side, in accordance with Dr. Moxon's theory alluded to in foot-note above.

[†] Not long ago I saw a case of imperfect utterance which was attributed to so-called aphasia (a term which I agree with Dr. Jacksen in thinking that we are much better without, as it indicates a mere symptom, and is one which is calculated to mislead very grievously), which proved to be owing to loss of teeth, and an inability properly to manage false teeth, which were worn. There can be no doubt that cases of mere disability to speak clearly, owing to some deficiency in or absence of the gums, may at first lead an observer to suppose that some paralysis of the cheeks or lips exists.

[*] This case ought possibly to be arranged among those having connexion with defect of language and a *generally diseased state* of brain, as the clot of blood in the right hemisphere was probably only formed just before death.

Case 6.—A man, aged twenty-five, after headache had numbness in the left arm, followed by left hemiplegia, the mouth being drawn to the left, and the tongue protruded to the same side. He did not, however, altogether lose consciousness, "but the articulation of sounds was lost." Delirium and *erysipelas of the affected limb** came on, and he died.

After death an abscess, of the size of a chestnut, was found in the *right* half of the tuber annulare, but passing a little beyond the median line. (Quoted by Dr. Copeman from the *Medical Times*, vol. v., p. 60.)

Case 7.—A woman, aged thirty-two, fell down in a fit and became *speechless*. Her speech soon returned, and she went to her work next day. For a week she progressed well; and then a second fit occurred, and she again *lost her speech*. Later on weakness in the right arm and leg came on. She died after a convulsive attack.

After death two clots of blood were found in the *right* cerebral hemisphere external to the lateral ventricle. (Quoted from Dr. Boyd's contributions to the Pathology of the Brain, in the *Edin. Med. and. Surg. Journal.* Case No. 807.)

Case 8.—A man, aged twenty-eight was admitted into hospital with apoplexy and hemiplegia of the *right* side of the body of recent standing. Above one year previously he had had a fit of apoplexy, attended with loss of speech and hemiplegia on the left side. After admission to the Marylebone Infirmary he *recovered his speech*, but was quite childish. Ultimately convulsions came on. Whilst in the workhouse he was in the *habit of passing large quantities of urine.*† Death occurred from a second attack of apoplexy.

On post-mortem examination, in addition to recent extravasation of blood in all the ventricles &c., an appearance like a cicatrix, with rusty-colored matter in the centre, was found beneath the smooth surface of the *right* corpus striatum and optic thalmus. "This appearance was most probably from the first attack of apoplexy." At the lower and posterior part of the left corpus striatum was a much smaller rusty discoloration, of the size of a split pea. (Dr. Boyd's Cases, supra cit., No. 794.)

(*To be continued.*)

ON THE

# TREATMENT OF ULCER OF THE STOMACH.

By Balthasar W. Foster M.D., M.R.C.P.

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The potent influence of rest in the treatment of disease has only recently received that scientific consideration to which it is so specially entitled. Its efficacy as a therapeutic agent has been recognised mainly in the surgical domain of practice, or in the treatment of the diseased condition of parts endowed with functions which admit of a break in the continuity of their action without disturbance to the system at large. In Professor Hilton's eloquent Lectures, numerous convincing examples are advanced of the good results obtained by the application of mechanical and physiological rest to the treatment of many surgical maladies, and instances are not wanting to indicate its value in the management of cases more especially medical. The influence of this agent in the hands of the physician is, however, necessarily limited by the very nature of the functions of those viscera whose disorders he is called upon to treat. For in the present state of our knowledge the cessation of function in many of the internal organs means death, so intimately is the continuity of their action connected with the maintenance of life. The falling heart and the worn-out lungs can know no break in the life-long circle of their toil; for as their continuous action means life, so their repose means death. Nevertheless, even in diseases connected with the functions of circulation and respiration, the influence of rest is not wholly excluded, but, on the contrary, forms in the present day an element of no small importance in our treatment. For although absolute rest, even for a short time, cannot be afforded to these organs, yet by diminishing the amount of their labor, and by removing the obstacles to normal action, we gain for them comparative, or, as it may be called, *partial* rest. In the maladies of the nervous system, and in those of some of the excreting glands, no small part of our success would be lost were this weapon taken from our armory; but it is more especially in diseases of the stomach, an organ for which we can obtain *complete* rest, that we find the greatest triumph is reserved for this therapeutic agent. This, to a certain extent, has been long recognised, and partial rest for disordered digestion has formed the basis of treatment in the hands of all masters of our art.

The stomach, when seriously affected, teaches this lesson by its own acts, for in the pain caused by the ingesta, and in their rapid rejection, we have an unmistakable negative returned to the too officious efforts to restore health by the stimulants of food, when the soothing influence of rest is alone required. That the application of this remedy to the management of stomach diseases should have been early noticed is not surprising, considering that the indications are so evident, and the good results so rapidly follow its use. But it is surprising that rest should have been generally administered in serious organic diseases in such sparing quantities, such infinitesimal doses, at once

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[*] This occurrence of erysipelas is interesting in connexion with the subject of the dependence of skin lesions, as also of the absence or excess of perspiration, of itching tendency, &c., upon modifications or perversions of innervation of the surface of the body. Mr. C. Hunter informs me that in cases of hemiplegia for which strychnia was injected subcutaneously diaphoresis was produced, but this was especially marked on the paralysed side of the body.

[†] I have now under my care a very interesting case of disease of the upper cervical vertebræ, and, most likely, of structures within the cranium at its base, affecting certain cranial nerves, in which one of the earliest symptoms was constant and excessive thirst. Throughout a long illness he has drunk excessively, and voided enormous quantities of urine, free from albumen or sugar, and this has been one of his most troublesome symptoms. I would, on this subject of polydipsia and polyuria in brain-disease, allude to a paper by Brockin the *Gas. des Hôp.*, March 10th, 1861.

too partial in its nature and too brief in its duration. For some years past the value of a treatment which affords *complete* rest to the stomach in its serious disorders has been increasing in my estimation, and the application of the plan to the treatment of ulcer of the stomach and to many other lesions of the viscus has strongly confirmed my opinion. The nature of the digestive act is undoubtedly the great obstacle to repair in gastric ulcer. But nevertheless authors have contented themselves with enjoining only that partial rest for the stomach which a limited diet affords. There is abundant evidence that this mode of treatment is in many cases efficacious, and the case of Béclard may be well cited in its favor. That distinguished anatomist recognised clearly the necessity of rest, as complete as possible for the organ, and in treating himself for this affection, limited his diet to such a degree that it barely sufficed to support life. His almost total abstinence met its reward in the cure of his disease, and at his death the necropsy revealed the cicatrix of an old ulcer. By far the greater number of cases attending at our dispensaries and hospitals as out-patients are necessarily treated in this way, and thus week after week, and month after month, the wearing pain and the half starvation have to be endured, till a gradual recovery, too often with shattered health, is obtained, or, as often happens, the sudden gush of blood from an ulcerated vessel, or the rapid collapse of perforation, closes the tedious case.

On the other hand, with the in-patients in our charities, and with all who can obtain good nursing, we have, in the judicious combination of *partial* and *complete* rest, the best means of ensuring a speedy recovery. During the first stage of the treatment the patient should be kept strictly to the recumbent posture, all food or drink by the mouth entirely forbidden, and nutritive enemata frequently administered; thus we procure for the stomach a long rest from all mechanical irritation, and from all physiological action. In the second stage, by a carefully regulated diet we should afford that *partial* rest necessary to perfect the cicatrisation, and to accustom the new tissue to the stimulus of the digestive act. The indications which we have to fulfil in the treatment of ulcer of the stomach are two—first, to promote the healing of the ulcer, and secondly, to alleviate the symptoms. By giving the viscus *complete* rest, from all physiological action, from all mechanical irritation, we remove the great impediments to the healing process, which consist in (1) the movements of the stomach consequent on the ingestion of food, and (2) in the mechanical and chemical irritation of the ulcerated surface produced by the food and gastric juice. The second indication is also fulfilled, for the pain and vomiting cease, and the hæmorrhage seldom if ever returns; while the patient, placed in the conditions for causing the least possible tissue-waste, is fairly nourished, and in many cases even strengthened, by the use of suitable nutritive enemata. In my hands this treatment has succeeded so well that I have every confidence in describing it as at once the most easy, the most rapid, and the most efficacious. In some twelve cases of gastric ulcer, and in several cases of ulceration from the action of corrosive fluids, as well as in other grave disorders of the digestive functions, I have obtained from it the most satisfactory results. The two following cases will serve to illustrate my mode of treatment.

Case. 1—J. H——, aged twenty, married, was admitted into the Queen's Hospital on June 20th, 1865.

*History.*—She has never been very strong, and has frequently suffered from attacks of indigestion. She was married at sixteen, has had one child, and has miscarried once. Before marriage she worked as packer in a warehouse, and afterwards she was at a confectioner's, where the work was very heavy. Since her marriage she has not had much hard work, and has enjoyed improved health, especially whilst suckling. For the last twelve or thirteen months her health has been indifferent, and about four months back she was seized with severe pain in the epigastrium accompanied by headache and vomiting. For several months her food was frequently rejected, and about one month before her admision she vomited several ounces of blood, and passed about the same time several black, tar-like stools. The hæmatemesis recurred from time to time with the rejection of food; sometimes merely a streak or two, at other times several ounces of blood being expelled. The catamenia have recurred at the proper intervals during her illness, but she has had a leucorrhœal discharge. Her bowels have lately been confined, and she has occasionally been annoyed by hæmorrhoids.

*State on admission.*—She wears an anxious expression; face pale; lips anæmic. She complains of severe pain over the stomach, sometimes of a dull and burning character, at other times acute and lancinating. Appetite bad; and she fears to take food, as it intensifies the pain. The pain is referred to a spot immediately below the ensiform cartilage, where the tenderness on pressure is very marked, but limited to a spot about the size of half-a-crown. Shooting pains extend now and then from this centre all over the epigastric region, especially after food, when the pain is most severe, and is only relieved by vomiting. The tongue is moist, and covered with a whitish fur; urine healthy; liver and spleen normal in size. The examination of the chest detected no abnormality in the lungs; but an anæmic bruit was heard at the base of the heart, and along the great vessels. She was ordered to keep strictly to the recumbent posture; to have no food or drink by the mouth, except three ounces of milk mixed with half the quantity of lime-water, to be taken to moisten the mouth during the day; an enema of warm water to clear the lower bowels; and afterwards five nutritive enemata daily, of three ounces each, three to be composed of strong unsalted beef-tea, and two of milk and yelk of egg, with ten minims of tincture of opium in each. Ice to moisten the mouth.

On the following day (June 21st), the nurse having reported that the milk and lime-water were rejected as soon as taken, they were discontinued. The pain in the stomach a little better, as is also the headache. The tongue slightly furred.

June 23rd.—No sickness since all food by the mouth has been stopped. Tongue less furred; pain in the stomach less. The patient is not anxious, and admits that she feels better. The enemata have been retained very fairly, only one having been returned.

24th.—The patient feels better, but very weak;

the pain nearly gone: the tenderness on pressure much diminished. She has a headache, and feels very thirsty. The tongue red and rather dry. The rectum slightly irritable, a portion of the enemata having returned with some fæces three times on the day before. Pulse 84.

26th.—Complains of headache and slight nausea. Pain in the stomach much less. Pulse 60; bowels irritable. Ordered twenty minims of tincture of opium, with three of the enemata.

29th—Has improved daily since the last note. The irritability of the rectum has been checked by the tincture of opium. She has felt no nausea or pain; pressure over the stomach now elicits scarcely any sign of tenderness; headache much better; tongue red, dry, and furred at the edges; says she feels very weak, and desires to eat. Ordered milk and lime-water, of each half an ounce, every two hours, and only three injections daily.

30th.—Much better; tongue clean. The milk has caused neither pain nor sickness. Ordered milk thickened with a little corn-flour, and to discontinue the enemata after July 1st, and then to take one ounce of fried sole for dinner. Pulse 84, feeble.

July 4th.—Much improved; tongue clean and moist; pulse 80, stronger. She has taken milk with corn-flour and arrowroot, also the fish, without any pain or uneasiness in the stomach. Ordered a small piece of chicken for dinner.

5th.—To take the following twice daily:—Iron and citrate of quinia, four grains; infusion of calumba, one ounce.

10th.—The patient is up, and walking about the ward; feels no pains after eating; enjoys her food, and has a good appetite; tongue clean; pulse 80; no tenderness on pressure over the stomach. At this time she was fit for discharge as far as the gastric symptoms were concerned; but she was kept in the hospital a fortnight longer on account of the anæmia, which gradually disappeared, and with it the murmur at the base of the heart.

She showed herself once a month for several months after her discharge, and on all occasions she was healthy and free from all gastric symptoms.

Case 2.—J. J——, aged twenty-two, dressmaker, was admitted on March 4th, 1866, into the Queen's Hospital.

*History.*—About one month before her admission she applied as an out-patient, stating that she suffered very much from indigestion and a severe pain in the stomach, increased by taking food; she had occasionally vomited blood with her food. These symptoms began, she said, about eighteen months previously, and increased in intensity up to the time of her appearance at the hospital. Before this illness she had always had good health. She was ordered some powders containing bismuth and powdered opium, and had full directions given her concerning her diet. She was also told to return immediately to the hospital if the vomiting of blood recurred. The hæmatemesis having again appeared on March 20th after a rather full meal, she was admitted on March 22nd.

March 23rd.—Her face is pale and slightly puffy; tongue flabby and slightly furred. She complains of slight headache, and of pain in the stomach and constant sickness. The pain comes on chiefly after eating; it shoots over the stomach, and is also felt very badly in one spot posteriorly in the left vertebral groove. She is afraid to eat on account of vomiting. The stomach will not even retain milk in very minute quantities. On examination, the pain is found to be situated just below the ensiform cartilage, and to the left side of the middle line. The area of tenderness on pressure is about the size of a half-crown. Pulse 70, weak and small. Heart-sounds normal. Lungs healthy. Liver and splenic dulness natural. Urinary organs healthy. Temperature normal. Ordered to take no food or drink by the mouth; to have, every four hours, an enema composed alternately of milk with yelk of egg, and strong unsalted beef-tea, with fifteen minims of tincture of opium added to each; to be kept strictly to the recumbent posture; and to have her mouth frequently moistened with water by the nurse.

25th.—The pain in the stomach is still felt, but not so badly. The sickness has altogether ceased. Tongue cleaner and drier; pulse 80. The treatment has been strictly followed, and the enemata have been retained.

26th.—No sickness or feeling of nausea; the pain much better, but the epigastric region as defined above still tender on pressure. Pain in the back better. She feels low, and very hungry. Tongue dry and slightly furred. Her bowels were moved twice yesterday, but not till two hours after enemata. Pulse 68, weak and compressible. Injections to be continued, with ten grains of pepsine added to each.

28th—Much easier in the stomach; tenderness less. The pepsine has, however, irritated the bowel, and caused the speedy rejection of the enemata. Slight pain has also been felt along the sigmoid flexure. The pepsine ordered to be omitted, and enemata of milk and egg, with twenty-five minims of tincture of opium in each, to be given. Pulse 58, weak.

29th.—She feels much better. No pain in the stomach or back, and scarcely any tenderness on pressure. Tongue furred and dry; pulse 68, stronger. The enemata have been well retained, and the tenderness in the course of the lower bowel has diminished. Ordered half an ounce of milk every two hours, and two injections daily.

31st.—The milk has been retained and caused no pain or uneasiness. Tongue moist, and less furred. The milk to be thickened with corn-flour.

April 1st.—The milk has caused no pain or sickness. Tongue clean. Scarcely any pain on pressure over the stomach. The milk and corn-flour to be continued.

2nd.—Tongue slightly furred, but she has had no pain in her stomach, and has enjoyed her food. The enemata, having irritated the bowels slightly, were ordered to be discontinued, and warm poultices to be applied over the lower part of the abdomen. One ounce of uncooked mutton, chopped very fine, to be given, in three portions during the day; also two ounces of sherry.

3rd.—Very much improved. The meat has agreed very well. Ordered to continue it in gradually increasing quantities.

5th.—Much improved; tongue clean; no pain or sickness after food; no pain on pressure; appetite good. The patient expresses herself as almost well. Ordered a little of the breast of a chicken, with bread and two ounces of sherry.

10th.—Discharged as quite well. She was directed to be very careful in her diet for a week or so, and to return most gradually to her ordinary food. She came to the hospital several times after her discharge, and was quite free from all her former dyspeptic symptoms, and had returned with pleasure to her ordinary habits of life.

The foregoing notes contain a fair description of the management of all the cases of ulcer of the stomach, which I have treated for some three years past in the Queen's Hospital.

As I have previously described it at length,* I need not dilate now on the treatment, which resolves itself, in all cases, into two periods, the first of which we may call the stage of *absolute* or *complete* rest, the second that of *partial* rest. The first may last from three to ten days, or even longer; and during this time the nutritive enemata must be solely relied upon for the support of the patient. No food and no fluid must enter the stomach. In the second stage, the nutritive enemata may be continued for a day or two, while the most scrupulous care is exercised in the choice of food, and the most rigorous supervision given to its administration. The addition of the tincture of opium to the injections from the very beginning is advantageous, not only on account of the beneficial action of the drug on the system, but more especially on account of its soothing effect on the rectum. Irritation of the bowel is generally prevented by its use, and when it does occur, is nearly always checked by an increased dose. This is a fact of great importance where the nourishment of the patient wholly depends on the adaptibility of the bowel to its novel office.

The pepsine added to the injection in one of the cases caused, as is reported, considerable irritation of the bowel: and I have since found the same effects following its use. The addition was made as an attempt to apply a suggestion which appeared in a very able review† of a former paper of mine on this subject. In the article referred to, Dr. P. Sonsino proposed the use of enemata composed of artificially digested food. The use of the pepsine was a rough attempt to utilise his thought. Its ill success, however, by no means diminishes the value of the suggestion; and I hope soon to report the success of a more elaborate attempt to carry out Dr. Sosino's valuable proposal. The researches of Mr. Savory in this country, and the more recent experiments of M. Demarquay in France, teach us how great is the abortive power of the rectum. In all cases in which the stomach refuses to act, or in which rest is likely to benefit the viscus, it is, I submit, our duty to utilise this power. We find this mode of treatment a powerful aid in combating many morbid conditions other than ulcer of the stomach; and, in illustration, I may specially mention the uncontrollable vomiting which so often accompanies pregnancy.

My friend Mr. Baines, of this town, has recently sent me the notes of two cases in which he adopted the treatment by *complete* rest with the best results after all the usual remedies had failed. In one case the patient was fed in this manner for more than four weeks. In many cases, now unfortunately matters of history, the same judicious management would, I believe, have proved equally efficacious. It has been often remarked to me, that the treatment of ulcer of the stomach and other conditions by this plan, which I have recommended, can never become general on account of its indelicacy. For my own part, I have always found patients suffering from ulcer of the stomach too happy to find any means of escaping from the agonising pain to think for a moment of such an objection, and, when hæmorrhage in any quantity has once occurred, too eager to grasp at any hope of cure. False delicacy soon kicks the beam when the love of life is placed in the opposite scale.

**Birmingham, April, 1866.**

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# ON IMPROVED METHODS OF EXTRACTION OF THE CATARACT.

**By J. R. Wolfe, M.D., F.R C.S. Edin.,**

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## No. I.

My object in these papers is, to submit to the profession the results of 96 cases of cataract, which I have extracted by a new method; to compare this method with the ordinary flap extraction, and with the other procedures lately introduced by the German ophthalmologists. For a period of five years I tried these various methods in a considerable number of cases, in the public institutions with which I am connected, as well as in my private practice; but during the last three years I have adopted the procedure which I call "modified sub-conjunctival extraction," and which I find highly encouraging in its results.

In order to avoid a hasty generalisation, and to arrive at a satisfactory conclusion, I have not restricted my observations to the experience obtained within the scope of my own practice, but have frequently visited the different Ophthalmic Hospitals in this country and on the continent, with the view of seeing as many patients as possible at different stages; and it is only after a long study and comparison of the relative advantages and disadvantages of the different methods that I venture now to recommend my modification to others for trial.

To give a connected view of the whole subject, it will be best to submit a short outline of the history of the operation of extraction, and to trace the different stages of its development. It will thus be interesting to see how we have progressed step by step in our course of improvement; how we have turned a hazardous operation—an operation fraught with anxiety to the surgeon and risk to the patient—into one of comparative ease and security.

The history of extraction of cataract can, according to Rhazes, be traced as far back as the end of the first century, when it was performed by Antyllus, and at a later period by Lathyrion. Ali-Abas, in the tenth century, knew also of the operation, and later, Abulkasem, having found it dangerous, tried to make the cataract disap-

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[*] *Vide* Dublin Quarterly Journal, May, 1864: "Clinical Observations on Diseases of the Stomach" (Cornish Bros., Birmingham, 1864.)

Lecture on the Treatment of Gastric Ulcer (Brit. Med. Jour., June 3rd, 1865).

[†] *Vide* L'Imparziale, Nov. 16th, 1865.

pear by suction, a method generally employed by the Persians. But if the operation ever was performed at that remote period, it had fallen into oblivion, and was practically unknown till 1707, when Saint-Yves, in the presence of Méry, made an incision in the cornea, and by means of a curette extracted a cataract, which, after depression, had risen up again, and passed through the pupil into the anterior chamber. The following year Pourfour du Petit performed the same operation upon a priest in the presence of Saint-Yves and Méry. The latter submitted an account of these operations to the Académie des Sciences, in which he proposed to extract a cataract through a corneal incision, not only when dislocated into the anterior chamber, but also when lying *in situ* behind the iris. As the author, however, never performed the operation which he so ingeniously suggested, his advice was fruitless, and nothing further was made known on the subject until the hint was reduced to practice, and the whole particulars of the process published by Daviel, a French surgeon, in 1745. To Daviel, therefore, belongs the credit of having obtained that new conquest to science, in systematising the process of extraction of the crystalline lens through an incision in the cornea. Daviel's procedure has subsequently been modified by Lafaye, Wenzel, Richter, Barthe, and Beer. It would be out of place here to mention all the modifications which Daviel's method has undergone; they refer partly to the size and direction of the flap, and partly to the form of the various instruments used.

*Flap extraction.*—The object of this operation, then, is the removal of the opaque crystalline lens from the eye, through the pupil, and through a semicircular opening made in the cornea, either in its upper or in its lower half. The incision must be made large enough to allow easy exit to the lens without the use of much pressure, which would do violence to the iris, or would rupture the hyaloid membrane and force out the vitreous humor. On the other hand, it must not be made too large, lest it should prevent coaptation of the flap and interfere with union by first intention. The size must be regulated by the nature and density of the cataract. If it has a hard large nucleus, the section should commence at the transverse diameter of the cornea, the twentieth of an inch from its sclerotic junction, thus opening the half of its circumference; but when the cataract is of a homogeneous softish consistency, or with a small nucleus, a section of five-twelfths of the circumference is sufficient, as such a cataract can mould itself and pass through a smaller opening. M'Kenzie advises to make the incision "at least one-half the circumference of the cornea," and mentions Ware as proposing even the nine-sixteenth part. After the incision is duly made, the anterior hemisphere of the capsule is to be lacerated as widely as possible with the cyctotome, and the lens to be gently squeezed out through the opening.

When this operation is well performed, and the healing process proceeds regularly, it leaves nothing to be desired; it is so beautiful in its results and appearance that it may be called the *chef-d'œuvre* of surgery. So high was my appreciation of this method, that three years ago, when exhibiting to the Aberdeen Medico-Chirurgical Society four of my first cases operated on by the modified sub-conjunctival method, I stated: "Of all the new methods which have lately been proposed for the extraction of cataract, none is, in my opinion, ever destined to supersede the ordinary flap extraction. Any given case of hard cataract without complications runs the best chance of success by the old classic operation, which is, moreover, so brilliant in its results that I should never look for another operative procedure. But cases, like those which I have the honor of presenting to you, do occur which are associated with local or constitutional complications, rendering the old method either too hazardous or impossible. To overcome such difficulties we must devise new plans for the removal of the opaque lens."

But it must be allowed that, besides the inapplicability of the flap operation to some cases, it carries a host of contingencies in its train. Not to mention the accidents which may occur during the operation, but which may be overcome by dexterity and coolness of judgment, there are others beyond the control of the operator, and which may undo his best executed work. It is evident that the ordinary flap extraction is inapplicable to a cataractous eye complicated with—1, an adherent pupil, with or without pseudo-membranous exudations; 2, confluence of the vitreous humour (synchysis); 3, dropsy of the anterior chamber (hydrophthalmus); 4, central opacity of, or conical cornea; 5, posterior staphyloma (sclerotico-choroiditis posterior); 6, glaucoma. Moreover, as the patient is required, after such an operation, to remain perfectly quiescent for about four, six, or eight days, it is impracticable to those who are suffering from (1) rheumatism or sciatica. (2) disease of the bladder or bowels, (3) bronchitis, (4) hysteric or epileptiform attacks.

M. Desmarres tells of a patient, Baron V—— (an important political personage), in whom, on examining the eye the third day after extraction, he found the sight good and the flap united; all on a sudden, when he was about to leave, the patient was seized with a fit of sneezing, which burst the flap, and the eye was completely destroyed. Every ophthalmic surgeon will be able to supply instances from his own experience where such an untoward accident as coughing, straining, starting, &c., saddened his brightest prospects.

Let us briefly analyse the principal factors which render the operation *per se* hazardous, and see how we can eliminate them.

1. *The large corneal incision* requires some days before it heals, and a few additional days before the cicatrix is out of risk of being burst open. Now in a patient of strumous habit, or in a state of senile marasmus, such a large flap is apt to suppurate, independent of other contingencies or mal-coaptation; although it must be admitted that primary suppuration of the cornea is very rare indeed.

2. *The lens may be found unnaturally adhering to the capsule*—one of those cataracts which come slowly to maturity; and instead of coming out entire, the nucleus alone comes through, leaving the cortical substance in the equator of the eye, which no coaxing can entirely remove. The fragments which remain within the interstices of the capsule may cause proliferation of its epithelial cells and those of the membrane of Desce-

met, and thus act as a focus of inflammation. But,

3. *The iris* is the most fruitful source of subsequent mischief. The sphincter iridis sometimes contracts so much that the capsule cannot be sufficiently opened, or even after it had been opened the iris may close upon the lens, preventing its easy exit; inordinate pressure is used, and contusion is the result. Now if this membrane has been wounded by the knife, or lacerated by the cyctotome, and particularly if it has been contused by undue pressure during the *accouchement* of the lens, a form of iritis develops itself, which may either close the pupil, or extend its inflammatory process to the wound, causing the latter to burst, and so produce hernia iridis and anterior adhesions, or it may even extend to the ciliary circle and to the deep membranes, causing panophthalmitis and complete destruction.

With so much anxiety did our classic writers caution us against lesion of the iris, which they considered as the starting-point of nearly all the ills that befall the eye after extraction, that M'Kenzie's advice is, in case "the iris has fallen under the edge of the knife, an attempt must be made to push it back by pressing with the point of the forefinger on the cornea; but if the iris does not retire on pressure of the cornea, the *knife must be withdrawn, and either the operation deferred to a future day*, or a small probe-pointed knife introduced through the aperture which has been made, pushed gently through the anterior chamber to the nasal edge of the cornea, and over the end of it an opening made with another knife, so as to allow it to come through, after which the incision is to be finished exactly in the same way as if the sharp-pointed knife only had been employed." As far as I know, M. Desmarres was the first to advise us that when a fold of the iris has fallen upon the knife, it is better to run the knife through it; for although in cases of contusion or laceration we must expect some mischief, yet when a slice of the iris has been cleanly cut off, the healing process is far easier, and no iritis need be apprehended. This doctrine seems to me to contain the germ of many of the improvements which of late years have been introduced in ophthalmic operations.

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### ON

# THERAPEUTICS AND ON THE NATURAL HISTORY OF DISEASE.

By E. J. Tilt, M.D., M.R.C.P.,

Consulting Physician to the Farringdon Dispensary, Etc.

An eclipse of faith is spreading over the face of English medicine, and there is a tendency to disparage the large amount of therapeutical knowledge that has been accumulated; but those who regret this tendency will remember that medicine is not bounded by our line of coast. If some of our most eminent men have no longer faith in medicines, there is no want of that faith on the continent. With regard to France I have watched the variations of medical belief, during the last thirty years, and it will be useful to compare these changes with those progressing in England during the same period. Broussais published in 1816 the first edition of his "Examen des Doctrines Médicales," and by four editions of this work, and by his numerous contributions to the medical press, all burning with passionate eloquence, the doctrine of inflammation, as the cause of all diseases, spread like wildfire; but it almost died out as fast, for although the last edition of his work was published in 1829, when I began the study of medicine in 1834 gastrite was already the standing joke of medical students, and as Broussais had been most virulent in his attacks upon the *polypharmacie* of former ages, when the profession lost faith in bleeding and leeches, they had only expectation to fall back upon. While this was going on, the South of France was somewhat preserved from the new doctrines by the traditional antagonism of the school of Montpellier to that of Paris, and the East by the fact of the school of Strasburgh being half German. Even in Paris many sensible men never believed in Broussais, kept alive the good old doctrines and therapeutics, and propagated them in the *Revue Mèdicale*. which was founded in 1820 by Recamier and Cayol; Michel and Bayles, I believe, founded the *Bulletin de Thèrapeutique* in 1831. The most influential conservative leader was, however, Recamier, for he was the teacher of Trousseau and Pidoux, who have done more than any others to spread sound therapeutical knowledge in France, by three editions of their work "On Therapeutics," of which the first edition appeared in 1836; by their numerous contributions to medical literature, and by the teaching of Trousseau, when after a magnificient *concours*, about 1835, he took and held for many years, the chair of Therapeutics in the Paris school.

After taking a Paris degree in 1839, I came to London to walk the hospitals, passing at once from an atmosphere of doubt, scepticism, and therapeutical inaction, to a land where the medical mind was reposing in the undisturbed conviction that it had brought therapeutics to perfection. Had not exorbitant doses of medicine been utterly repudiated? Were there not three national Pharmacopœias to be chosen from, besides the special Pharmacopœia of each large hospital? Had not all this positive pharmaceutical lore culminated in the just published work of Pereira—to be henceforth the bible of British practice? Every medical man I spoke to shrugged his shoulders at the miserable ignorance of therapeutics in the French school; and as I walked round the hospitals I never ceased admiring the wonderful confidence with which drugs were being administered. But even when all seemed so safely settled, there were thinkers already chafing against a system which ignored entirely the all-healing powers of nature, and they found an exponent in Sir John Forbes, who in 1845 published his article on "Homœopathy, Allopathy, and Young Physic." Since then the choice medical spirits of the two countries have been marching in opposite directions: the French gradually acquiring a steadily increasing faith in remedies and adopting our notions, Graves finding an enthusiastic admirer and translator in Trousseau; while we have now lived to see what must disturb the peace of Pereira in the blest abode—we have actually lived to see physicians, in metropolitan hospitals, treat acute rheumatism by mint-water, and boast of having done so. Now that we are all alive to the fact that the operations of nature cure alike the patients of quacks and of orthodox men, the cry is, "the natural history of diseases!" Very good; but it will take considerable time to write afresh the natural history of the most frequent diseases in our latitude, and what is to become of the patients in the meantime? Are we to tell them that we are uncertain whether medicines are useful, useless, or pernicious?

"The natural history of diseases" is a very good cry. It rang in my ears when I was a medical student in Paris. Many wanted to begin medicine afresh, as they had to begin everything else in the year 1 of the Republic, one and indivisable. It was the reproach of wise men to Louis that he ignored the legacy left us by the great of bygone ages, and was going to begin again to restore medicine, by his own individual efforts. Louis was a quiet gentleman, without a professorial platform; he had neither the eloquence nor the audacity of a successful innovator. He persuaded some that the *numeric method* would save medicine; but he made no *school*, and his efforts did not in the least check the growing confidence in therapeutics.

"The natural history of diseases." A most laudable pursuit, repeatedly followed at different periods of history; but why talk of history to those who have so much to study that they cannot even read the history of their own art? I only profess to draw attention to what occurred in France after the collapse of Broussais, and I can aver that generally in the Paris hospitals *expectation* was the order of the day. Diet, simple tisanes, lavements (simple or medicated), castor oil,—such was the general plan of treatment; sirop de diacode, if the patient did not sleep; leeches to cure local inflammation; moderate bleeding, if it were acute. Of course there might be found a Bouillaud attempting to *jugulate* pneumonia and typhoid fever, and some less known man treating typhoid fever by saline purgatives; but those who want to know the natural history of diseases will find it recorded in Andral's Clinique, and in the works of Chomel, Louis, and many other writers of the same time.

"The natural history of diseases!" I have insisted over and over again that the right way of studying diseases of women was to do so by the light of the natural history of menstruation, showing the way in one of my works. If for thirty years of her life woman is bled every month moderately, and often exorbitantly, with impunity that should at least teach the present generation of medical men that it is absurd to be afraid of damaging a patient's constitution by taking away ten ounces of blood in cases of inflammation. The perfect innocuity of vomiting, in most cases of pregnancy, will some day teach medical practitioners how foolish it was to give up the use of emetics in many cases of dyspepsia and biliary derangement. If I take the liberty of pressing on others to hasten as much as possible the process by which they are attempting to make up their minds as to the extent of the powers of nature in the cure of disease, it is for the sake of our patients and for the credit of our art. It is no consolation to men of moderate opinions to know that when the pendulum of the human mind has violently swung in one direction it will assuredly, after a certain lapse of years, swing back with equal momentum in the opposite direction. There is so little rest between extremes; we have only just escaped from the reign of exorbitant doses and over-stringent pharmaceutical formalism and we are now menaced with a rapid return to that slough of expectant medicine which centuries ago, was rightly stigmatised as "a meditation on death." Only a few years back and we were outrageously frightened by the bugbear of inflammation and already our utility is often paralysed by the bugbear of debility.

Grosvenor-steet, April, 1868.

### ON

# CHANCRES IN ADULTS AND CHILDREN, ATTACKING UNUSUAL POSITIONS, ASSOCIATED WITH SYPHILIS.

By Thomas Bryant, F.R.C.S.,

Assistant-Surgeon to Guy's Hospital.

The records of cases which differ from the ordinary run of recognised disease are always of interest, and for diagnostic purposes cannot be too closely studied. In syphilitic affections it cannot be too well known that chancres of every form may be found in parts far distant from the genital organs, and that they may be produced in very different ways from the common kind of venereal affections. In a diagnostic point of view, it is a matter of considerable importance that these facts should be recognized; and as a contribution to the clinical aspect of the question, the following cases may not be without interest.

The cases are arranged in order. The first are those of chancres as attacking adults; the last as affecting children.

**Case 1.** *Chancre of the upper lip, with constitutional syphilis.*—Annie T——, aged twenty-two, a single woman, came under my care at Guy's Hospital on Sept. 13th, 1858, with a chancre on her upper lip of three months' standing. It was the size of a sixpence, and very indurated. For two months she had suffered from sore-throat, and had the staining of the skin which follows a specific eruption. A gland beneath the jaw was also indurated. Under the influence of iodide of potassium she rapidly convalesced.

**Case 2.** *Chancre of the upper lip and specific lichen.*—Amelia W——, aged twenty-one, a single woman, came under my care at Guy's Hospital in May, 1860, with a chancre on her upper lip of six week's duration. It had commenced as a fissure, and gradually spread. When seen it was as large as a sixpence. For two weeks she had also suffered from a papular eruption all over her body (specific lichen). Some Plummer's pill was given at night, and tonic mixture during the day, and in six weeks she was discharged cured.

**Case 3.** *Chancre of the lower lip, sore throat, maculæ, and indurated glands.*—John H——, aged thirty, came under my care at Guy's Hospital, April, 29th, 1861, with a chancre on his lower lip of one month's duration, sore-throat, and indurated submaxillary glands. Some specific maculæ also appeared over his body when under treatment. He rapidly convalesced under the influence of the iodide of potassium.

CASE 4. *Chancre on lower lip; specific maculæ, and indurated glands.*—Emma F——, aged twenty-two, came under my care in January, 1862, with a chancre on her lower lip, maculæ over the face and body, and indurated submaxillary glands. The chancre had existed eight weeks; the other symptoms about six. A grain of iodide of mercury was given every night, and three grains of iodide of potassium with cinchona three times a day. In about two months she was convalescent.

CASE 5. *Chancre at the corner of the mouth; no constitutional symptoms; inflamed submaxillary glands.*—Ann L——, aged seventeen, came under my care at Guy's Hospital on the 11th of July, 1864, with a soft chancre at the corner of her mouth, of three weeks' duration, and inflamed submaxillary glands. Under tonic treatment the sore healed and the inflamed glands subsided, the patient leaving the hospital cured in about one month.

In none of the cases just related could any history be obtained as to the means by which the lips became inoculated with the disease; and in none of the examples in which the chancre occurred in women was there any evidence of any vaginal affection. In the single male example the penis was clean.

CASE 6. *Chancre on the forearm; constitutional syphilis.*—A man came to me in November, 1866, with an indurated chancre on his left forearm, the size of a shilling, of six week's standing. When under observation a specific lichen came out all over his face and body. He had no disease on his penis, nor was he able to account for the chancre on his forearm. By taking quinine with the iodide of potassium all his symptoms disappeared.

CASE 7. *Chancre on the nipple; constitutional symptoms.*—In 1865 a girl aged nineteen came to me with an undoubted chancre of the nipple, which had existed a month; in another month specific maculæ appeared over the body, with sore-throat. She had no vaginal disease of any kind; but she admitted that her "young man," who had an eruption on his face and hands, had manipulated her breast and had kissed it. Under treatment with iodide of potassium and bark she convalesced.

CASE 8. *Chancre on the fingers; specific lichen; recovery.*—Nathaniel S——, aged twenty-five, a laborer, came under my care at Guy's Hospital, on Sept. 15th, 1864, with three chancres on the tips of three fingers of the right hand of three months' duration. He had also a specific lichen all over his body of six week's standing. His penis was free from disease. He had grazed his fingers at his work a few days before the sores appeared, and had "fingered women." By the use of iodide of potassium and bark he rapidly recovered.

CASE. 9 *Chancre on the cheek, specific maculæ, and sore-throat, following a scratch from a man who was suffering from syphilis.*—William H——, aged twenty-two, came to me, at Guy's Hospital, on Nov. 17th, 1866, with a large chancre on his left cheek, with an indurated base of nine weeks' duration. It appeared after a scratch he had received from a fellow-laborer who had syphilis. The cervical glands in the left side were much indurated. On the 15th of December maculæ appeared over his face and body, and sore-throat soon manifested itself. With quinine and iodide of potassium all the symptoms subsided. On the 4th of February the chancre had healed; and by the 18th of March every other symptom had disappeared.

CASE 10. *Chancre of the lip in a boy; constitutional syphilis.*—Thomas J——, aged seven years, a healthy lad, was brought to me, at Guy's Hospital, on Feb. 14th, 1867, with a chancre on his lower lip of three weaks' duration. He was presented by his father, who had been under my care some years previously with a tubercular syphilitic disease of the face and body after a chancre which he had contracted some months before. Three years ago, also, he had again been under my care for a syphilitic cellular membranous ulcer on the leg. When he came with his son his tongue was slightly affected with disease. Specific tubercles and scales subsequently appeared over the boy's face and body. Under the iodide of potassium the boy is now well. The father stated that he was very fond of his boy, and was constantly kissing him. It is probable that it was by such means that the disease had been conveyed.

CASES 11, 12. *Syphilis in two children of the same family; father and mother healthy.*—David G——, aged seven, came under my care on March 15th, 1866, with a specific tubercular eruption about the scrotum and thighs, also about the neck. It had been coming on for several months. This boy had slept with his uncle, a young man of eighteen, who had a like eruption.

Sarah G——, the sister of the above, was als brought to me the following week with specific tubercles about the buttock and condylomata of four months' duration.

The father and mother of these children wer quite healthy.

Under treatment both these cases recovered. The iodide of potassium in some tonic mixtur was the medicine employed.

CASE 13. *Syphilis in a child, aged four.*—Hen F——, aged four, was brought to me on Aug 19th, 1858, with a tubercular and scaly erupti over his body and face, of three months' durati The mouth and anus were also the seat of ulcer ing condylomata. No history of syphilis cou be obtained from the parents. Mercury wi chalk, one grain, and dried soda, four grai were ordered twice a day. By Sept. 5th t ulcers at the anus and mouth had healed, and t eruption was fading. All symptoms had dis peared by the 25th.

CASES 14, 15. *Syphilis in a child, aged se years, with chancre on lip; also a brother of t above, aged ten months.*—Walter B——, a seven, was brought to me on March 21st, 18 with an indurated chancre on the lower lip of f weeks' standing, and a scaly eruption all over t body. Under treatment recovery took place.

A brother of the above, aged *ten months*, w also brought to me at the same time with a spe fic eruption over the body.

The parents had lost one child two years p viously at the age of six months with a skin er tion. The father had had syphilis before m riage. The mother had never had any sympt of disease.

**Finsbury-square, March, 1868.**

# OBSERVATIONS ON OPHTHALMIC SURGERY.

By Haynes Walton, F.R.C.S.,

Surgeon to the St. Mary's Hospital, and to the Central London Ophthalmic Hospital.

## No IV.

### WOUNDS OF THE CORNEA WITH PROLAPSE OF THE IRIS.

An accidental penetrating wound of the cornea, whether by puncture, incision, or rupture, is almost invariably followed by prolapse of the iris; and this is still more sure if the wound be near the margin of the cornea. The iris is forced out by a gush of aqueous humor, which escapes with varying velocity, according to the nature of the accident, and becomes wedged in the gap. The elasticity of the cornea exerts a tightening influence. The effect on the pupil is always marked; there is distortion with diminution, the aperture being pulled to the spot where the iris had escaped; the pupillary movements are therefore interfered with. It is seldom with a lateral prolapse that any part of the pupillary edge is involved; although, as a very rare occurrence, I have seen the greater part of the iris thrust out in this position, carrying with it the entire pupil, and leaving the remainder tightly stretched across the chambers. With a central wound, a very slight prolapse may destroy the pupil; and the worst class of cases is those in which there is a considerable rent, the anterior chamber destroyed, and the iris in contact with the cornea. These accidents are remarkably common, the commonest of all the severe ones, and occur for the most part among children during play with sharp-pointed instruments, and with stones, bits of slate, &c. I meet with several cases every year in private practice and in hospital.

*Treatment.*—The thing indicated is to return the iris within the eye. This reduction is often talked about, and rules given for effecting it; but since I have not met with a man who has seen it accomplished, and as I have never been able to effect it, the event must indeed be rare, and the art very difficult to be done. But credit must be given to published reports in which complete success and partial is announced; the cases are too well authenticated to admit of doubt. It is often said that if a bit of iris which is intentionally prolapsed in the making of an artificial pupil, sometimes annoyingly slips back and regains its position, and spoils the desired object, why may not an accidental prolapse be pushed back? There is a physical difference in the detail. In the former there is no wedging, no forcing of the iris into a wound as far as it can be driven. It is gently drawn into a smooth-edged aperture much larger than itself; hence the all-significant difference in the two between the relative proportions of the aperture and the contained mass; therefore the occasional slipping back.

If the reduction of any ordinary case of prolapse be possible, it can only be within a few hours after it has occurred, for very quickly does the process of repair set in: A trustworthy observer, Rosa, examined portions of prolapsed irides at periods varying from two days to five after the accident, and found in all a layer of false membrane easily separable. This is formed in the course of the natural cure. The new membrane incorporates itself with the divided edges of the cornea—just as happens in the case of disease, when a part of the cornea is lost by ulceration or sloughing,—the iris protrudes, and a staphyloma is formed. It would be useless and hurtful to attempt any reduction after such action is set up.

Supposing, then, a case to be seen within a reasonable limit of time, what is to be done? The answer of modern ophthalmology would be this: If the prolapse occupy the circumference of the cornea, apply to the eye a drop of the fluid extract of Calabar bean, because, by the contraction of the pupil which the bean always produces, disengagement of the iris might follow. I have never been so fortunate as to get such a result. I have, too, tried the experiment when the iris has been prolapsed after the operation for tapping the anterior chambers, but in vain. If it be at the centre of the cornea, use a solution of atropine, which producing an opposite effect—dilating the pupil,—the iris might be pulled aside, and so released from the wound. Now, while I have no faith in the beneficial action of either of these in decided prolapse and strangulation, I admit their usefulness, and I speak particularly of the latter when the iris is not actually protruding and incarcerated, but just in the wound. I saw a young gentleman in less than a quarter of an hour after he had wounded the outer part of one of his corneæ with a scalpel. A portion of the iris was just embraced by the lips of the wound, to which the pupil was pulled, but did not protrude. A drop or two of a solution of a grain of atropine to two drachms of water was at once used, and in three-quarters of an hour the pupil was well dilated and perfectly round, showing that the iris was quite extricated. The dilatation was kept up for several days, till the wound was healed. A small scar on the cornea is the only trace of the accident.

Several manipulative measures are recommended. Some surgical authorities say that in no slight case of prolapse, which is seen quickly after the accident, should one abstain from attempts at reduction; and the readiest, and therefore first method, is to rub the cornea gently through the medium of the upper eyelid for a few seconds, so as to push back the iris, and then suddenly to expose the eye to a bright light, and to repeat this several times in succession, taking care that the sound eye is shaded while the friction is employed, and simultaneously exposed to the light with the injured one. I have never myself thus succeeded; neither has Dr. Mackenzie, nor did Sir Wm. Lawrence, who told me that he had made a great many trials. The plan has been recommended, no doubt, on the fact that an immediate prolapse, after the operation of extraction of a cataract, may sometimes be so reduced; but the cases are not analogous, as a moment's reflection must show.

Dr. Mackenzie thinks that, could the little bag of iris that protrudes be emptied of its aqueous humor, it would often return immediately to its place. Puncturing it would do this; but then a false pupil might be made. The method that he recommend is, instantly after dropping a solution of atropine into both eyes, to bring the patient under the influence of chloroform, and with a small curette to press on the little bag of iris, so as to empty it of its contents. The curette should enter through the wound, carrying the bit of prolapsed iris before it.

I have in recent prolapses made many trials that have been suggested, and I have arrived at the conclusion that it is better for the patient to abstain from any attempt. Such endeavors irritate the eye, and may prove fatal to it. I advise, then, that all attempt at a reduction be witheld, and attention be directed to such treatment, generally and locally, as will subdue irritations, and prevent further damage to the eye.

A small or moderate-sized prolapse generally passes through its destined stages of repair without any ulterior result, provided ordinary care be observed during the period. My practice is to do everything to soothe the eye, and the best of all things for this is to close it with court plaster. In addition, the patient should be kept tranquil. These measures should be continued till the lachrymation and intolerance to light have ceased, when the repair is well established—a condition that will be manifested by the loss of undue vascularity in the eye, except just where the protrusion is, the vessels there being the last to disappear. But if the wound should involve a portion of the sclerotica as well as the cornea, in which case the sensitive ciliary region is involved, or if the prolapse be very large, or if it be accompanied with any other damage to the eye, any of the other effects of a blow, there is greater seriousness in the accident, and longer treatment is needed.

*Some notice must be taken of the piece of displaced iris,* that without the eye. In primary prolapse the less that is done the better. I have tried all the recommendations, and carefully watched the different kinds of treatment adopted by other surgeons, and I came to the conclusion that those patients did best in which there was no irritation produced by the nitrate of silver or any other drug; they made the best recoveries. Several times I have seen damage done. The solid nitrate of silver is apt to destroy the adhesions to the cornea, and thereby produce a greater prolapse. Neither do I snip away any portion of the iris; it is unnecessary, because the soft and delicate bit never irritates, and the doing of which is itself an injury that has to be repaired. Whatever is not needed in the formation of a proper cicatrix is sure to be efficiently and neatly removed by a natural process, and with a better result and quicker than if interfered with by art.

There is a tendency among surgeons to cease attention to these accidents too soon, and the consequence often is a renewal of the inflammation, with the attendant events.

The effects of a prolapse is according to the displacement of the pupil and its diminution. Sometimes, therefore, vision is not damaged. The more the pupil is pulled to the edge of the cornea, the more is perfect sight interfered with.

Cataract is often the direct effect of this lesion, and that, too, when neither crystalline lens nor its capsule has been injured, and it may commence in a few hours, or it may not be manifested for days, weeks, or months. The treatment of the cataract should be delayed till the eye has recovered from all the inflammatory and irritating effects of the accident.

Brook-street, April, 1868.

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# CARBOLIC ACID IN THE TREATMENT OF COMPOUND FRACTURES AND ABSCESSES.

By J. Rutherford Ryley, M.R.C.S.E.,

Surgeon-Superintendent of the Hospital, and Surgeon to the Gaol and Lunatic Asylum, County of Westland, New Zealand.

The readers of The Lancet may be interested to know that Professor Lister's new method of treating compound fractures, &c., has already been tried on this side of the globe, and with a success which will I think, ensure it a trial at the hands of every practitioner in these colonies who has the advancement of "conservative surgery" and the interests of his patients at heart. I studied under Professor Lister during the first two years of his teaching at the Royal Infirmary, Glasgow, and knew him to be a philosophic surgeon, and one whose researches on the nature of inflammation had already been attended with advantage to conservative surgery:

> "Scire potestates herbarum usumque medendi
> Maluit, et mutas agitare inglorius artes."

I, therefore, eagerly availed myself of a method of treatment which held out such prospects of success—all the more eagerly, inasmuch as the last two cases* of compound fracture treated by me in the hospital here terminated fatally.

Henry H——, aged thirty-two, miner, admitted Jan. 7th, 1868, when he stated that about five hours before admission, while engaged with his mates felling a tree, the trunk in falling struck him on the right leg, jamming it against the trunk of another tree. Found a compound fracture of both bones of the leg at its middle third, the wound exposing the fracture being on the anterior aspect and tibial side, not very large externally, and bleeding freely, as patient had been carried five miles over a rough road. After having explored the wound, which was very deep, and removed clots, and squeezed out as much of the fluid blood which had collected in the wound as possible, a piece of lint held in dressing-forceps was dipped in melted carbolic acid of full strength and introduced into and made to penetrate all its accessible crevices. On being removed, a second piece was introduced in the same way. The pain not by any means severe, was almost momentary. A piece of lint sufficient to cover the aperture of the wound and about an inch of the margin was dipped in the solution of carbolic acid and boiled linseed oil, and applied immediately, and over this the antiseptic paste. The displacement of the fragments was then rectified, and the limb placed in an improved M'Intyre splint, after which the patient expressed himself free from pain and quite comfortable. For the first three days there was a discharge of blood and serum from the wound, but not the slightest pain or constitutional disturbance; the tongue being clean the pulse natural, and the patient ate and slept well.

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* Both cases were caused by direct violence: the first a tree falling on the limb, causing a compound fracture both bones of the leg immediately above the malleoli. the upper fragment of the tibia projected through a wound which involved the ankle joint, and the leg was verely bruised, it was considered in consultation that putation, after the patient had recovered from the would afford him the only reasonable prospect of This I accordingly performed through the calf, with the of only a few ounces of blood, and everything, as far operation itself was concerned, seemed favorable cess. Inflammation, however, ran high, and the flap sloughed away. exposing the bone. A second tion was performed, below the tuberosity of the tibia, giving the patient the use of the knee and a sufficient to allow of the application of an artificial limb; but tient, who was a delicate young man, a clerk by pro having walked several hundred miles, and wrought week as a gold miner immediately before the receipt injury, and was, therefore, a bad subject for an died of exhaustion. The second was a case of fracture of both bones of the leg, with very severe ing. The tibia protruded through the wound for two but was reduced without removing any portion of the and an attempt was made to save the limb. Inflamma followed by unhealthy suppuration and accompan irritative fever ensued; and although free incisions made to relieve tension and give exit to sloughs, and other usual remedies employed to support the streng allay irritation, local and general, the patient succu on the seventeenth day.

Jan. 11th.—All oozing from the wound having ceased, the lint placed immediately over it being quite dry, and firmly adherent by a crust of inspissated blood, the use of the paste was discontinued.

Feb. 14th.—The bones are now firmly united, in as short a time as if the case had been from the first a simple fracture, without the least perceptible shortening of the limb or inequality at the site of fracture. The rag over wound, being loose, was removed, when a superficial sore, about the size of a shilling-piece, was found, which healed under water-dressing in a few days.

Arthur C——, aged thirty, miner, admitted 28th January, 1868, when he stated that three hours before admission he was working in a sluicing claim at the Kanieri, five miles distant, when a mass of earth and stone slipped and fell twenty feet from the face of a terrace, striking him on the left knee, throwing him backwards, and burying the limb in the débris. There was a compound fracture of both bones of the leg at its middle third, the wound communicating with the fracture being in the calf, and having an external aperture of an inch and a half in length. The wound was bleeding freely, and the limb was much bruised and swollen. The wound was treated freely with the acid, and dressed as in the previous case. Displacement of the fragments was then rectified, and the limb, bent at the knee, to relax the hamstring and gastrocnemius muscles, was placed comfortably on its outer side on a pillow until a suitable apparatus could be made as I had no M'Intyre splint with slides so situated as to allow of exposure of the wound for the purpose of dressing without undoing the whole apparatus. 7.30 P.M.: Leg placed in a splint of wood and iron, after the fashion of a M'Intyre splint with a thigh-piece, and a large aperture behind at the site of the wound, with a movable piece to fit into the aperture. As there was a profuse discharge of blood and serum from the wound the paste was changed before putting the limb in the splint.

Jan. 29th.—Slept pretty well; complains on being pressed of a very slight uneasiness occasionally at the site of the fracture.

31st.—No discharge; the lint over the wound saturated with inspissated blood, and adherent; a little swelling in the leg still, but no more uneasiness than if the fracture were a simple one, which, indeed, it now is. Paste discontinued.

Feb. 1st.—The original dressing quite dry, and the wound evidently advanced in the healing process by granulation under it, as under a scab, and as in the previous case, without the formation of a single drop of pus.

March 1st.—Bones now pretty firmly united; leg put in starch bandage, and the patient allowed to go about on crutches.

Patrick D——, aged twenty-eight, miner, admitted Jan. 1st, 1868. The patient, a very healthy muscular man, states that a fortnight ago he was thrown from a tramway truck with a number of others, and received a blow in the left axilla from the elbow of one of his fellow-travellers. Shortly afterwards he noticed a swelling in the axilla, which rapidly increased in size, accompanied by fever, pain, and tenderness, which prevented him using his arm. On admission, there was a large tumour in the axilla, non-fluctuation, and intensely painful on pressure; tongue covered with a white fur; pulse 120; thirst, loss of appetite, sleeplessness, &c. Knowing how unmanageable an abscess in this locality generally is, an attempt was made to put it back, but unsuccessfully, as the tumour continued to increase till the 14th, when fluctuation was distinctly felt; the matter having burrowed not only upwards but backwards beneath the scapula, and forwards beneath the pectoral muscles, owing to the resistance of the fascia of the floor of the axilla to its reaching the surface. A bistoury, having been dipped in the solution of carbolic acid and oil, was plunged into the abscess midway between the anterior and posterior folds of the axilla under an antiseptic curtain, and a free incision made in withdrawing the knife, when the curtain (which was held by an assistant) was dropped upon the parts, and over it was placed the antiseptic paste. The forearm was, as usual, supported in a sling, and the arm secured to the side to prevent motion and exert a gentle pressure on the tumour.

Jan. 15th.—As the aperture showed a tendency to close, a tent, dipped in a solution of acid and oil under a fresh curtain, was introduced. About an ounce of dark-colored putrid pus escaped, and a fresh dressing paste was applied.

16th.—A considerable quantity of pus escaped since last dressing. The antiseptic paste applied as before, care being taken not to disturb the lint over the opening. Patient slept well during the last two nights, and expresses himself as quite relieved; tongue clean, thirst gone, appetite returning, and no pain in the part.

17th.—Scarcely any pus escaped since the previous dressing, the outer dressing being slightly stained from contact with the inner; cavity of abscess contracting rapidly. Patient free from all constitutional disturbance; slept eight hours; and was put, at his own request, on full diet. The tent was removed.

19th.—Examined the sinus with a probe dipped in the solution of the acid, in oil, when it was found nearly closed.

He was discharged on the 29th, the external aperture having completely healed, the patient having almost entirely recovered his lost flesh and strength.

I have used carbolic acid in other surgical affections of less importance than those described, and with a success, if less striking not less satisfactory. As a remedy for burns of the first and second degree, applied as recommended by Professor Pirrie, I have found it to act almost like a charm.

**Hokitika, New Zealand, March 2nd, 1868.**

# ON THE MODES OF DEATH IN EPILEPSY.

By G. Mackenzie Bacon, M.D.,

**Medical Superintendent of the Cambridge County Asylum.**

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The immediate cause of death in epilepsy is a matter which is not always easily solved, and one which is not often discussed in works on medicine, most probably from lack of information. This silence on the part of writers is not to be wondered at, when one considers how few epileptics die in hospitals or under the observation of the more learned teachers of medicine; for, as such patients are generally incurable, and also unpleasant companions, they seldom figure long as inpatients. But there is another cause far more active, and connected with the nature of the disease—viz., that, inasmuch as the mind always suffers from prolonged epilepsy, in a certain time the victims of this disease, or at all events a large proportion of them, disappear from society, and require seclusion in an asylum, where they are lost to the world.

Few, perhaps, are aware how largely epileptics figure in asylum statistics; but in these may be be found most of the many failures in treatment of this disease by the general physician. Thus, taking only the pauper class (which can hardly have any special liability to epilepsy), there were on January 1st, 1867, in the public asylums of England and Wales, 24,748 patients, of whom 22,257 were "probably incurable," and of these last 3354 were epiletic—i. e., 15·5 per cent. of the whole number,—a large proportion to represent one cause of the total insanity. I only mention this incidentally to show that this is one of the great results of epilepsy, and that, therefore, the "intra-asylum" features of the disease form an essential element in its consideration.

My object at present, however, is to show some of the modes of death in epilepsy, and this is best illustrated by asylum experience. I am well aware, how difficult it is to frame a rigid definition of "epilepsy;" but I think a distinction must be drawn between those cases in which the convulsions are known to be due to some other disease, and those in which there is no organic disease to account for them; in other words, between "primary" and "secondary" epilepsy. Probably at some future time we shall attain to a more precise knowledge of the causes, now so obscure, of many forms of epilepsy, and shall then reduce to the minimum the primary or unexplained; but in our present ignorance we must be content to draw the line somewhere, and for this reason I should not include under the name of epilepsy proper, cases of convulsions in the course of general paralysis, those due to softening, or effusion on, the brain, nor those occurring in Bright's disease. It seems to me as little reasonable to merge such cases indiscriminately in one category, and consider them as positive diseases, as it would be to treat the feverishness of a catarrh as a special complaint. It may be difficult to express such a distinction in words, but some such method must be present to the mind in considering the various forms of epilepsy, at least if we are to study it to any useful purpose. The confusion caused by the reckless use of the word epilepsy, as explaining everything and representing nothing, is apparent as soon as one tries to estimate the mortality due to this cause, for no one can possibly tell what is included under the word epilepsy in the mortuary lists.

If we read in the Registrar-General's Report for 1864 that 2406 deaths were due to epilepsy, we get no definite idea as to the real cause of death, and cannot tell whether the patients died directly from the fit or in quite a different manner. Indeed, the only proper conclusion to be drawn is, that an individual who was epileptic, amongst other faults, is dead. Surely we might get a nearer approximation to truth than this. The unsatisfactoriness of this sort of information is seen by the vague way in which this subject is dealt with in treatises on Epilepsy. Thus Dr. Sieveking, in his book, says—"The fit occasionally proves fatal by the exhaustion of nervous power, or by the interruption of the respiratory process; but more frequently death results from the supervention of other diseases, or from the complications with which epilepsy is associated. The frequency of death from epilepsy bears no proportion, it appears to me, to the frequency and the importance of the disease itself; ......*of the immediate cause of death in epilepsy we have no data.*"

Now asylum experience furnishes some facts of importance in elucidation of this question, and I will endeavor to point out, as concisely as possible, their bearing. Excluding, then, cases in which the fits are known to be secondary to other disease, the causes of death may be classed under the following categories—

1. Those arising from the long-continued effects of the disease on the body;
2. Deaths after a rapid succession of fits;
3. Sudden deaths in a fit;
4. Accidents due to fits.

1. Under the first head I would include what is properly expressed by the term "the decay of epilepsy"—i. e., the condition patients reach who have had fits for years, and, after becoming demented, gradually lose the use of their limbs, and die out, wasted and exhausted, without the supervention of any structural disease. These cases are always to be found in the wards of a public asylum, and in these are often discovered at the post-mortem inequalities and defects of the brain—abnormalities only indirectly threatening life.

2. Some epileptics die after a series of fits lasting through two or three days, and their death may be ascribed to "epileptic coma," that being the final stage.

3. Deaths *in* a fit are more rare, and require the most consideration. The following are some of the causes:—(1) Asphyxia from the violence of the spasm, and consequent venous congestion. (2) Sudden loss of nervous power, due, probably to the state of the heart or its nerves, and not occurring in young persons. (3) Suffocation: which may arise from (*a*) the face being buried in the pillow (or any soft material—mud, for instance) by the patient turning over in a fit; (*b*) from the impaction of food in the larynx or œsophagus; (*c*) from regurgitation of liquids from the stomach into the lungs, or the flooding of the lungs with blood from a vessel giving way during a fit, as happened to a phthisical man with a vomica.

4. Accidents may include a great variety of modes of death, but I only refer to those directly connected with the fit, such as when a patient

falls in a fit and fractures his skull, or receives other injuries from which he dies; or when such an incident occurs as the following, recorded at the Notts Asylum: "An epileptic patient was found early in the morning dead, with his head on the floor and his legs on the bed, twisted among the bedclothes, which retained him in this unfavorable position. On inquiry, it appeared that he had been seized with a fit, had rolled thus partially out of bed, and expired.'"

I have condensed these observations as much as possible, wishing merely to point out some of the ascertained causes of death; but I am prepared to illustrate each of the classifications I have made by cases occurring within my own experience or recorded by others. Some of the instances are curious accidents, and in most the true cause of death could hardly be properly determined without post-mortem examination. Of the causes enumerated, that of suffocation in bed is far from uncommon in asylumns (five cases having occurred in a large asylum in one year); but this does not seem to be recognised as such in the outer world. I hope to enter more fully on the whole subject at a future time, but I think I have even now furnished some of those "data" said to be wanting; and, moreover, that if practitioners would adopt some such system in recording deaths from epilepsy we should not have to lament such a meaningless blank as the word now represents in lists of mortality.

Fulbourn, near Cambridge, April. 1868.

## NOTES
## OF A
## CASE OF GASTRODYNIA.

By Thos. D. Everet, M.R.C.S., Eng.

Having lately had under my notice a somewhat unusual case of this intractable disease, some notes I have made of it may perhaps prove interesting to the readers of The Lancet.

At the latter end of last May, a lady, unmarried, aged forty-four, complained one day to me that she felt far from well, and wished for a dose of medicine, fancying herself bilious. Knowing her constitution right well, I sent, as I had done before, a calomel pill and senna draught. It had but little effect, and a few days after she sent to say that she felt very ill and in great pain. I saw my patient in bed, suffering considerably over the transverse colon, and no relief of the bowels had taken place for some days. Viewing the case naturally as one of ordinary obstruction, I ordered the usual remedies and overcame the difficulty, a copious action following the aperients ordered. The motions and urine were tolerably natural, and everything seemed fair enough, with the exception of the complaining of a dull aching pain about the stomach. Remedies in the way of antispasmodics, anodynes, &c., proved of no avail, and from day to day the pain and uneasiness increased. On visiting the patient one morning, I found the most profound jaundice had set in which, though at first obstinately resisted mercury and saline cathartics, at last yielded; the motions, previously bileless, became loaded with bile, and the urine *vice versâ*. At this stage of the case (it was the beginning of June) a curious set of symptoms arrayed themselves. The old uneasiness and pain over the epigastrium never left, but steadily increased, with occasional attacks of spasm agonising to bear and painful to witness; they were not periodical, and came on without any assignable cause, beginning with an interval of two or three days, and lastly becoming of daily occurrence, recurring at different times of the day, and varying also in duration, generally lasting three or four hours. The attack was always followed by jaundice—i. e., the patient became intensely yellow, the motions (if any occurred) very pale, and the urine like coffee. And it was very curious to notice how these symptoms played seemingly upon each other; for when the bile was circulating in the blood the patient was free from pain, but the resumption of her natural appearance seemed the signal for a speedy paroxysm of pain. The appetite naturally failed; nothing could be retained on the stomach but a little milk or jelly, and even this was some times ejected and caused great uneasiness. I tried in vain for a remedy to stop the progress of the disease and to relieve the sufferings of the patient, the paroxysms becoming daily shorter in interval and longer in duration. The lady was becoming extremely thin, and had a somewhat carcinomatous look, so much that her acquaintance, which was numerous, remarked upon her appearance with the worst forebodings. This state of things lasted till the end of September, when I strongly advised seeking further counsel. She was seen by two physicians, who pronounced the case to be in all probability malignant disease of the pylorus. There was no evidence of gall-stone.

Thus matters looked very grave, and everything seemed dead against my poor suffering patient. What with this intense pain, the violent retching, unmistakable wasting, sleepless nights, and with natural anxiety as to her future recovery, her case seemed to warrant anything but a hopeful prognosis. Recommending no medicine, but small repeated doses of port wine or brandy, with anything else that could be got down and kept there, I left the case to passive treatment, watching it with great interest. The only medicine taken, and that which alone gave any relief, was ten grains of ipecacuanha powder; this relieved the patient within a few minutes after having taken it, and before anything like nausea occurred; it did not at all times have a good effect, but when it did it was clearly overcoming spasmodic action.

About the beginning of November I began to recognise a marked change for the better; the attacks becoming less frequent and less intense; the appetite returning, and the patient beginning to resume her natural healthy look. To sum the matter up, I may briefly state that by the end of December (now three months since) all bad symptoms gradually vanished, and everything righted itself. I repeatedly see this lady now, and have for years past never seen her looking better, and in such excellent health and spirits, and certainly stouter than before her illness. I have not yet stated that the catamenia had been suspended for some six or seven months, and herein I cannot help believing lies the *fons et origi mali*. In short, I look upon it as a case of "climacteric gastrodynia;" and when one witnesses the extraordinary phases of disease that show themselves in women at this period of their existence, I trust my idea is not far-fetched, especially coupling with it the fact that at the age of fourteen my patient had a somewhat similar attack, though, of course, not so severe in its nature. Not the least interesting feature in this case to me is the illustration it affords of how diseases, as it were, of an artificial or functional character simulate those of a true malignant type, causing thereby the most acute in diagnosis and the most keen in perception to express their opinion in a guarded form, and baffling at the same time those less proficient and experienced in the healing art.

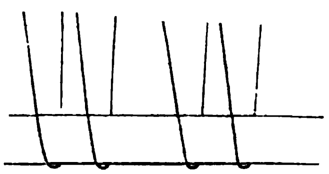
**Crouch-end, March, 1868.**

# A NEW METHOD OF USING SILVER WIRE IN THE TREATMENT OF WOUNDS AND IN OPERATIONS.

By S. Wordsworth Poole, M.D. Aberdeen,
Surgeon to the Cray's Paper-Mills.

Being unaware that silver wire has been employed in the following manner in any of the hospitals, I venture to think that the plan is not much known, though it seems so simple and obvious that it must have occurred to, and probably been practised by, many.

A very common accident in paper-mills is the vertical amputation of one or more fingers, through about the middle of the last phalanx, by the paper cutting machine. In such a case sutures are not available, an operation is hardly called for, and by the ordinary treatment with water-dressings or stimulating lotions, a month elapses before a perfect skin is formed; but by the following means a perfect cure is obtained in, at the farthest, fourteen days:—A slip of adhesive plaster being taken, about as wide as a finger-nail, four loops of wire are attached to it, thus. They are to be so placed that when the plaster, heated is applied firmly at a little distance from the truncated extremity, four free ends shall project beyond the finger on the dorsal aspect, and four on the palmar. A larger piece of plaster having been applied so as to give additional fixation, the opposite wires are twisted over the wound, two and two, by a dressing forceps, as much as seems advisable. Thus the exposed surface is considerably diminished in size, and a quantity of blood and lymph is forced out, which forms a firm coagulum that does not decompose, and remains until it is found that a new and perfect skin is formed underneath.



The wire may be similarly used in flap operations on the fingers and the great toe, and I have found it much superior to plaster in fastening a lacerated finger to a splint. The opportunity has not occurred to employ it thus in a larger operation; but it seems to me that a modification of it would be useful wherever the circumference of the limb could be embraced by the strip of plaster. The first application is undoubtedly troublesome, but as a rule, no further interference would be required, and it would not prevent the use of those antiseptic dressings lately come into vogue.

I regret that the inability to read has prevented me from finding out whether this mode has been adopted by others, but it seems the time now to give even the least impulse to the effort to remove from surgery that opprobrium, the tedious healing of wounds, which will be the astonishment of future generations.

**St. Paul's Cray, Jan. 1868.**

# A Mirror
## OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

> **Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.**

## KING'S COLLEGE HOSPITAL.

### THREE CASES ILLUSTRATING THE TREATMENT OF TIGHT URETHRAL STRICTURES BY EXTERNAL DIVISION AND BY THE DIRECT APPLICATION OF CAUSTIC POTASH.

In King's College Hospital, the usual treatment of stricture at the back part of the urethral canal is that by dilatation, which in aged subjects, and in those who are much weakened by the effects of the chronic lesion, is carried out slowly and gradually, and in younger patients by the more rapid method known as Mr. Holt's plan of mechanical dilatation. These two methods of treatment have, in the surgical practice of this hospital, been found applicable to a great majority of cases, and by careful attention to general health and diet, and by keeping the patient in the recumbent position, they have generally been followed by direct and permanent success. Cases however, occasionally occur in which the stricture is either impenetrable to the most patient application of minute instruments, or where lesion rapidly returns after a supposed cure dilatation, again blocks up the canal, and places the patient in the same unfortunate position before. Under circumstances such as these, surgeon is driven to fix upon one of several methods of treatment, the safety and ease of formance of which are considered in many fluential quarters open to much doubt. We here the histories of two cases in which external division was performed, in one instance grooved sound, in the other without any director passed through the stricture. The great difficulties attending perineal section and its subsequent dangers are well exemplified in the first case; the second case, a marked contrast is presented in the ease of the operation and the rapid progress towards cure attending the simple operation of dividing the stricture upon a grooved director. The third case is one of very dense and impenetrable stricture of the urethra, treated successfully and without unfavorable signs, by the use of potassa fusa—a method first proposed by Mr. Whately in 1810, and carried out at the present day by Mr. Le Gros Clark and by Mr. Wade.

### IMPERMEABLE STRICTURE OF URETHRA, ASSOCIATED WITH HYPERTROPHY OF THE SCROTUM AND URETHRAL SINUSES; PERINEAL SECTION; PERITONITIS; RECOVERY.

(Under the care of Sir Wm. Fergusson.)

Edward P——, a corpulent but weakly man, was admitted into King's College Hospital on October 24th, 1867. No very clear account could be obtained of the previous history of this patient's affection. He stated that about seven years ago he suddenly passed a quantity of blood from the urethra, and that the penis and scrotum became red and swollen. He was admitted into a country hospital, and seems to have been treated for extravasation of urine, as a deep incision was made into the scrotal raphé. Since that time micturition had been very much impaired, and of late the urine had been constantly flowing away in drops.

On admission, the scrotum was found to be elongated, and the subcutaneous tissue thickened and indurated. The integument was also red and eczematous; and there were several sinuses in the scrotum and perineum, through which urine passed. There was a contracted stricture at the back part of the urethra, through which no instrument could be forced.

Nov. 9th.—The patient having been placed on the operating table and brought under the influence of chloroform, Sir Wm. Fergusson proceeded to perform perineal section. A sound was first passed down to the stricture, and after the patient had been placed in the lithotomy position a deep incision was made in the perineum. After a cautious and prolonged dissection, a catheter was finally, with some little difficulty, passed into the bladder; the instrument was tied in, and the patient removed to the ward. There was considerable hæmorrhage after the operation, which was arrested by the application of ice.

10th.—The patient since the operation has been much exhausted, and suffers from vomiting. Temperature 102°. Sir Wm. Fergusson removed the catheter.

12th.—Did not sleep well during the previous night. The tongue is furred, the abdomen tympanitic, and the legs are flexed. Vomiting of a yellow bilious fluid continues. A five-grain compound soap pill was ordered to be taken every four hours. Fomentations to be applied to the abdomen.

13th.—Vomiting still continues, together with all the symptoms of acute peritonitis. Temperature 101·2°; pulse 112.

14th.—To-day the man is somewhat better. Temperature 100°; pulse 102; respirations 21. The urine comes entirely through the wound, and its passage causes intense pain. Vomiting still continues.

19th.—During the last twenty-four hours he has improved. The vomiting has ceased, and the pain and distension of the abdomen are subsiding. The general surface of the body is of a yellow and icteroid color. Temperature 97°; pulse 100. The urine passes freely through the wound.

25th.—The man is much better. There are no abdominal pains, the tympanitis is slight, and a small quantity of urine passes by the urethra. The wound in the perineum is covered on its apposed sides by healthy granulations, from which there is a profuse discharge of thick pus.

Oct. 3rd.—Is now progressing very favorably. The hypertrophied and indurated scrotum is much reduced in size. The wound in the perineum is healing rapidly, and a considerable amount of urine passes through the urethra.

10th.—A No. 5 catheter was passed; and on the following day a No. 6.

21st.—The urine now passes from the urethra freely, and in a full stream. A No. 8 catheter has been passed; but, in consequence of a contraction of the external meatus, no larger instrument can be inserted into the canal. The wound has healed, and the sinuses are no longer open. The scrotum is much reduced in size; and, as the patient is now able to get about the ward, the enlarged organ is suspended in a kind of bag.

Jan. 25th, 1868.—The patient was discharged from the hospital as cured.

### CONTRACTED STRICTURE OF THE URETHRA; EXTERNAL DIVISION ON A GROOVED STAFF; RAPID CURE.

(Under the care of Sir Wm. Fergusson.)

Henry S——, aged forty-five years, was admitted into King's College Hospital on August 10th, 1867.

*Previous history.*—The patient states that he was affected with syphilis when nineteen years old. About ten years ago he noticed that his stream of urine was very small; it gradually diminished in size until at last the urine merely dribbled away. He was during this time frequently under treatment. Two years before his admission he was an in-patient at St. George's Hospital, where a gum-elastic catheter was passed into the bladder, and retained there for a week. Nine weeks ago an abscess formed at the back part of the scrotum, and shortly afterwards two more purulent collections formed and burst. All these resulted in sinuses communicating internally with the urethra.

On admission, a tight, almost impassable stricture was found to exist at the bulbous portion of the urethra. The scrotum was enlarged, and its subcutaneous connective tissue thickened and indurated.

Aug. 17th.—External division of the stricture was performed, the patient being under the influence of chloroform. After some little difficulty Sir Wm. Fergusson succeeded in first passing a very small grooved sound through the stricture. The patient was then placed in the position for lithotomy, and an incision made from the surface of the perineum to the stricture, which was then divided without any trouble. A large gum-elastic catheter was then readily passed along the whole extent of the urethral passage, and the bladder emptied. The patient lost very little blood during the operation.

Sept. 24th.—To-day the patient was discharged cured. Since the operation he has progressed favorably and without a single bad symptom. The urine is voided in a full stream, and a largesized catheter can be passed with ease. The scrotal sinuses have healed, and the scrotum itself is reduced in size.

### VERY TIGHT TRAUMATIC STRICTURE OF URETHRA; TREATMENT BY DIRECT APPLICATION OF POTASSA FUSA; CURE.

(Under the care of Mr. Henry Smith.)

James N——, aged thirty-two years, a strong, healthy-looking man, was admitted into King's College Hospital on the 28th of August, 1867.

*Previous history.*—About twelve months before the patient was knocked down by a cart, one wheel of which passed over the lower part of his body. The following morning there was complete retention of urine, and the man sent for a surgeon, who succeeded in passing a catheter and emptying the bladder.. The catheter was allowed to remain for three days. Since that time no instrument had been passed; but there had always been difficuly in micturition, and great straining. These increased in intensity up to the time of admission, when the urine was discharged, not in a stream, but in constant dribbling.

On admission, a tight stricture was found at the back part of the urethra; and corresponding to this could be felt a small indurated tumour in the perineum. Mr. Smith failed after several attempts to pass the smallest catheter through the seat of obstruction. The patient was kept in bed in the recumbent position, and three leeches were ordered to be applied to the perineum.

On Aug. 31st and Sept. 4th leeches were again applied to the perineum. The fibrous swelling seemed slightly reduced after this, and the flow of urine was decidedly freer, but the stricture still remained impassable to instruments.

Sept. 19th.—A soft waxen bougie was passed down to the face of the stricture, and the distance of the contracted part of the urethra from the external meatus marked on this with the finger-nail. A small piece of potassa fusa, broken off from the centre of a fresh stick, was then placed in a depression made at the end of the bougie, and carried down rapidly to the stricture, and kept in close contact with its surface for about two minutes. This proceeding caused severe pain, which, however, very soon passed off.

This treatment was repeated on alternate days until Oct. 8th, when a small catheter (No. 2) was passed into the bladder with ease. On Oct. 22nd a No. 5 catheter was passed, and from this time the patient progressed favorably and rapidly. He attended for some time as an out-patient, and was finally enabled to pass his urine in a full stream. When last seen, a No. 9 catheter could be passed with facility.

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## GUY'S HOSPITAL.

(Department of Morbid Anatomy.)

### NOTES OF AUTOPSIES OF—I. HEMIPLEGIA FROM EMBOLUS; RENAL DISEASE. II. PULMONARY APOPLEXY FROM EMBOLUS; PHTHISIS. III. HYPERTROPHY AND DILATATION OF THE HEART; THICKENING OF MIDDLE-SIZED SYSTEMIC ARTERIES.

(Conducted by Mr. Moxon.)

A large number of post-mortem examinations are made at Guy's and these are conducted so systematically, and the results explained so fully by the pathological registrar, that the theatre is always a favorite resort of the students. There is always something to interest and instruct in these examinations. On a recent visit we watched the examination of the three cases, brief notes of which we here publish.

The bodies inspected included two cases of dropsy, both interesting from the very difficulty in explaining them. They belong to a class of cases which show that we have yet much to learn before we can fully understand many cases of cardiac and renal dropsy.

The first case was that of a woman aged fifty-eight, who had never had rheumatic fever. She was admitted suffering from dropsy and dyspnœa. Her urine was albuminous, and a systolic bruit was heard over the apex of the heart. She never showed much tendency to recovery, but her life was brought more quickly to an end by an attack of left hemiplegia, three days after which she died, without coma, from increase of her pulmonary obstruction. On opening the head, the brain was found to be softened on the right side, at the part corresponding to the distribution of the Sylvian artery. The grey matter here was swollen to twice its natural thickness, and was much paler than elsewhere; the white matter of the same part was marked with greyish pellucid spots, as though œdematous. The cause of all this was found to be a small round piece of pale opaque fibrin, which was impacted in the Sylvian artery at its first branching. There was a little black loose clot before and behind this plug, and except here, the blood in all the cerebral vessels: was liquid; it was especially to be noticed that the blood in the right Sylvian artery beyond the plug was also liquid. Dr. Moxon held this as sufficient proof that the plug had been carried into the vessel, and had not formed there. He thought it very unlikely that the blood in a part of a larger artery should become stagnant and coagulate, while the blood in the smaller branches remained fluid; the larger artery being nearer to the force of the heart, the stream in it must be more active and less likely to stagnate. The heart was found to be dilated pretty uniformly, and its valves were practically healthy: there was no disease of the great vessels. Although the mitral valve was not absolutely perfect, yet this was only that its edge was a little less delicate thad usual, and was marked with a few minute reddish elevations, at the same time turning slightly towards the left ventricle. All these conditions, however, made not only a very slight, but a very recent, imperfection, and appeared insufficient to cause incompetency of the valve. The state of the cavities precluded further the idea of mitral disease, for the left auricle was small, and had in it none of the ante-mortem "polypi" which were numerous in the ventricles, especially in the left ventricle. Now though authors upon diseases of the heart describe mitral disease as a cause of hypertrophy and dilatation of the left ventricle, yet no one can suppose that such effects of a mitral obstruction could be present in the ventricle and absent in the auricle, for on this latter the first and the chief effects of impediment at the mitral valve must act. This freedom of the auricle shows that no notable mitral imperfection could have existed. If, then, the dilatation of the left ventricle was not a part of mitral disease, what was its cause? The kidney was looked to, and was found to be of the usual size, but studded over with small cysts, which were very numerous. Further, the cortex of the organ was found on section, to have lost its natural lobulated or striated appearance, and to be homogenous and pale. These signs marked an intrinsic disease of the kidney, and it then became a question of interest to judge how far this disease of the kidney might be the cause of the cardiac obstruction and dilatation. As a general rule, it might be stated that whatever obstruction causes hypertrophy of the heart could also cause its dilatation; for if the muscle is unable to overcome the obstruction, and the heart cannot empty itself, its walls yield permanently, if the obstruction be permanent. Now, whichever of the views proposed to account for hypertrophy of the heart in Bright's disease be true—that is, whether we are right in attributing the hypertrophy to an effort to overcome the resistance which the tissues of the system offer to urinous blood, or whether, with Dr. Johnson we think that the heart hypertrophies to overcome a resistance which the small arteries of the system offer to a bad blood, in virtue of their supposed function as guardians of the tissues against noxious materials in the circulation,—in either case the heart is called on to use greater effort in order to empty itself than would suffice under natural circumstances; and failing such excessive efforts, it will continue partly full after its insufficient contraction, and so a dilatation of the heart will be established. This is probably a true explanation of the dilatation of the heart which we sometimes meet with in Bright's disease, as in the case of the woman under inspection. The dilatation of the left ventricle was accompanied by a wasting of its parietal fleshy columns and perhaps this favored that stagnation in the recesses between these columns which had led to the extensive coagulation of blood in them during life, and thus to the formation of ante-mortem polypi, which were present in all stages of softening. Now, as there was no disease of the valves of the heart, these polypi were probably the source of the embolic mass in the Sylvian artery, and this probability proved to be further supported by the appearance of the clot, which was round, and quite corresponded to the smaller polypi in the left ventricle. Such a case shows that the absence of abnormal valvular murmurs in sudden hemiplegia need not exclude the possibility of embolism as a cause of the attack.

It was interesting to see the contrast of this case with one which had occurred two or three days before at Guy's and in which a like embolism of the Sylvian artery had occurred. In this latter case the brain suppurated in the field of the obstructed artery, true pus being formed in large quantity. There was also similar suppuration of the spleen at parts where the arteries were also plugged. The emboli in this case were derived from an ulcerated mitral valve, and the difference of the cases illustrates well the effect of the *quality* of an embolus. An embolus, indeed, acts in two ways—1st, simply mechanically, by occluding the artery it gets into, and so starving the tissue which depends on that artery; and 2nd, by the vital effect of the *quality* of the embolic mass, which if it comes from a seat of suppuration, as in the case of ulcerative endocarditis sets up suppuration in the field of the artery into which it is thrown, as we see in abscess of the brain. But if the embolus be a result of mere passive stagnation, as in the cardiac polypus, it carries with it no vital activity, and causes only atrophic softening of the tissue, whose supply is cut off by it, as we see in the simple softening of the brain under inspection.

Another result of embolism was seen in the case of a lad who had died of emphysema of the lung supervening upon old phthisis. The upper parts of the lungs were indurated, and contained puckered cavities. The lower lobe of the right lung showed a considerable patch of apoplexy. The artery leading to this part of the lung was full of ante-mortem clot, which appeared to have come from the right auricle, as in this the relic of an ante-mortem clot was present, while no other source of such a clot could be found. This case offered a rare example of apoplexy in an emphysematous lung. The right heart was hypertrophied, and so far the conditions would support the idea of a rupture of the pulmonary capillaries by the excessive power of the right ventricle. But apoplexy is so constantly absent in cases of emphysema with hypertrophy of right heart, that we cannot look upon the hypertrophy as a cause of apoplexy; while, on the other hand, embolism of the pulmonary artery, or at least ante-mortem clots, are found almost invariably as antecedents of apoplexy in parts of the lungs. The boy's lung showed a beautiful example of emphysema caused in the way pointed out by Dr. Gairdner. Much of the lung-tissue was shrunken and destroyed by the phthisis, and the rest was highly emphysematous by compensatory expansion; so that, instead of dying by hectic and wasting, he died by capillary bronchitis and dyspnoœa.

The third case was one having many points of resemblance to that of the women first mentioned. It was that of a man who had died of dropsy, with albuminuria, and signs of pulmonary obstruction, but without abnormal cardiac bruit. The dropsy was extensive, and the paleness of the surface, with absence of the yellow tinge of heart-disease, or the purple suffusion generally present in chronic bronchitis, made the case look like renal dropsy; but when the kidneys were inspected, they had not the appearance of intrinsically or primarily diseased organs. They were of the natural size, the surface was nearly even, the lobular construction of the cortex was quite distinct, regular, and of the natural thickness; while the Malpighian corpuscles were brought beautifully into view by the excessive congestion present in the organ. These appearances quite negatived the idea of old or extensive disease of the kidney, such at least as would account for the state of the heart, which was enormously dilated and hypertrophied. It weighed 26 oz; and all its cavities, but especially the left ventricle, were much enlarged. The valves and the great vessels were, however, quite healthy. The middle-sized systemic arteries, on the other hand, were very thick, as was especially seen in the radial, hepatic, and renal arteries, but not at all more in the latter than in the former; and these vessels were only thickened, not degenerated. Such a condition of the vessels may throw some light upon the hypertrophy of the heart, inasmuch as it indicates that there had been some unsuitable quality of the blood, such as to call out an increase in the power of the arteries of the heart. If the state of the kidney could be held to indicate a long-standing disease of those organs, we should then have had a case similar to that of the woman first inspected, and have viewed the condition of the kidney as explaining the state of the heart. But the kidney had rather the appearance of engorgement secondary to cardiac obstruction. Perhaps a study of the chemistry of the blood in such cases might throw some light upon them. Analogy would lead us to expect some impure state of the blood, because the condition of the heart and arteries is so similar to that attributable to the urinous quality of the blood in Bright's disease. The liver was carefully examined; but its state was natural, except from the nutmeg-like appearance common in heart-disease.

### A CASE OF LEPRA ANÆSTHETICA (?)

(Under the care of Dr. Wilks.)

The curious case which is described very briefly below was quite lately in the above hospital, where we saw her frequently. Some details of her case we have extracted from the history taken by Mr. F. Taylor, ward clerk. Neither Dr. Wilks nor Mr. Bryant has come, we believe, to any very decided opinion as to the nature of the malady; but they incline to regard it as more nearly allied to lepra anesthetica than anything else.

The patient is a woman, Eliza A——, aged thirty-five, married, with seven children, and has never lived abroad. Four years ago, after a severe cold, she felt numbness of the fingers, with such weakness that she dropped things, and this was worst in the right hand. Cold caused blueness of the skin and pain; warmth then produced "pins and needles." During the past year two of her nails have dropped off, and there is now one coming away. In January the pain in her fingers got so bad that she applied at Guy's as an out-patient, under Mr. Bryant, by whom she was sent into the hospital on March 11th. For a month past one of her toes has been numb and painful. On the right hand, the thumb and little finger are sound, but the former is bluish. The nails of the middle and ring fingers are compressed laterally, the finger pulps being contracted under them. The skin of the ungual phalanges is tense and pink. The last two joints of the forefinger are inflamed, with pus coming from under the nail which looks white and dead. She has lost two nails since she was admitted; a fresh nail has hitherto replaced those shed, The fingers now are painful when touched. Some weeks ago, she told us, they were numb. There are occasional shooting pains extending up to the elbows. The skin of the face is dark and brawny. It is not easily pinched up. She says that under excitement her lips and tongue feel stiff. The second cardiac sound is a little prolonged.

On April 11th she left the hospital, and now attends as an out-patient under Mr. Bryant.

Perhaps Mr. Bryant would show her to the Clinical Society?

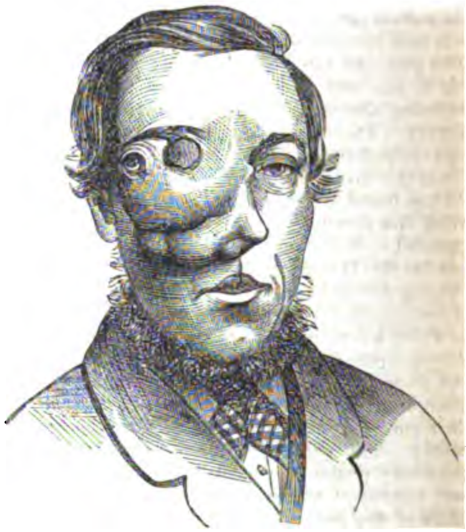
## UNIVERSITY COLLEGE HOSPITAL.

### LARGE RECURRENT TUMOUR OF THE FACE; REMOVAL; RECOVERY; SUBSEQUENT ERYSIPELAS AND DEATH FROM PYÆMIA.

(Under the care of Mr. Christopher Heath.)

It is not very often that the history of a morbid growth can be tracked so clearly as it is in the following notes. The unfortunate termination of the case was quite unexpected. When we saw the patient a fortnight after the operation he appeared quite well, and was walking about.

Henry M——, aged thirty-four, was admitted on the 1st of January, 1868, with a large tumour of the right side of the face. When about seventeen years of age he noticed a pimple on the right side of the nose, which increased pretty rapidly, and three months after (1851) he went into St. Thomas's Hospital, when Mr. Le Gros Clark operated, and removed a tumour as large as a walnut. He quite recovered, and was well for a few months, but within a year the tumour had returned. He was then admitted into King's College Hospital, under Mr. Partridge, who, in June, 1852, removed the tumour, which was of an osteo-cartilaginous character, oblong in shape, and of the size of a large walnut, projecting slightly into the antrum, and involving the nasal process of the superior maxillary bone, but in no way involving the mouth or orbit. From this operation the patient made a good recovery, except that a small fistulous opening was left in the cheek. The man continued in good health until 1857, when he went to America, and soon after arriving there he found the tumour beginning to appear again, and in 1860 Professor Gunn operated at Anne Harbor, in the State of Michigan, and removed the entire right upper jaw, with the greater part of the tumour, but left a portion at the inner side of the orbit. This soon began to grow again rapidly, and the tumour projected on the face. The surgeons at Maple-rapids, where he lived, wanted to operate again, but the patient declined, and returned to England in 1865. Soon after this an abscess formed in the upper part of the tumour, which was lanced with great relief, but the incision thus made has never closed, owing to the stretching of the skin by the tumour.



The patient's appearance on admission was most unsightly, the right side of the face being greatly disfigured by a large tumour, by which the eye was thrust completely aside, but without loss of vision. Immediately to the inner side of the eye was an open granulating sore of the size of a florin, the result of the incision for the evacuation of matter already referred to. The tumour appeared externally to consist of two portions, separated by a horizontal sulcus, at the bottom of which the fistulous opening resulting from the second operation was still visible. The upper and more prominent portion had invaded the orbit, reaching to its upper border, and extending beyond the middle line of the nose. A small portion of this had within the last two months projected through the left nasal bone. The lower portion of the tumour involved the ala of the nose and adjacent portion of the cheek, both of which were much distorted; on a small projecting portion of this the skin was adherent. Both nostrils were completely blocked, and had been so for months. Within the mouth it was seen that the whole of the right side of the hard palate had been removed; and in its place there was a smooth, red, oval mass, coming down to the level of the teeth of the opposite side. The scars in the middle line of the lip and on the cheek, resulting from former operations, were still visible. The tumour was solid and not tender to the touch, the most prominent point being apparently osseous. There was no enlargement of the glands in the neck or elsewhere, and the man appeared in good health. The tumour had made decided progress within the last few months, and he was anxious to have it removed, to which, after a consultation with his colleagues, Mr. Heath agreed.

*Operation*, Jan. 8th.—Under chloroform Mr. Heath made a curved incision below the eye to the side of the nose, from the extreme of which a vertical incision was carried down the face and round the ala of the nose; and the lip was divided in the cicatrix of a former operation. The flap was then dissected back, and with it a hard prominent nodule of bone, which became detached from the bulk of the tumour. The tumour being thus exposed, Mr. Heath proceeded to enucleate it with the fingers, and by successive efforts removed in this way the upper part of the growth. The portion projecting into the mouth was found to be held by a firm band of tissue in the position of the gum, and after dividing this Mr. Heath was able to tear out the growth, and also a portion projecting through the posterior nares into the pharynx. The wound having been well sponged out and the hæmorrhage having abated, the portion at the inner side of the orbit was removed, and was found to project into the frontal sinuses, which (particularly the right) were considerably expanded. With one of Langenbeck's palate spatulæ Mr. Heath carefully cleared these out, scraping the walls, and then introduced a pledget of lint covered with a paste of chloride of zinc (to which a string was attached), in order to destroy any remaining portion. This was the only part from which the growth appeared to have arisen, the remainder of the huge cavity left by the removal of the growth being smooth and healthy. The septum narium was found to be completely pushed over to the left, and to have been destroyed at the upper part by a projecting lobule of the growth which had pushed through the nasal bone. The ala of the nose included a small portion of the growth, which was removed, and also the bony nodule attached to the flap, the upper corner of which, being very thin and closely involved in the growth, was cut off. The wound was sponged out with solution of chloride of zinc, and, all hæmorrhage having ceased without the application of any ligatures, the lip was brought together with hare-lip pins, and the remainder of the wound with wire sutures. Mr. Heath brought together the edges of the gap caused by the opening of an abscess some months back, but finding that this prevented the patient closing his eye, he subsequently removed these sutures. Collodion was painted over the wound, and the patient, who had a good pulse, was carried to bed.

The patient made an uninterruptedly good recovery from the operation. The wound was kept clean by syringing with Condy's fluid; the plug of lint in the frontal sinus was removed on the third day after the operation, and the sutures on the eighth day, the incision being well united. The right eye, which had been much displaced, began gradually to recover its proper position. A fortnight after the operation the patient was up and about the ward, and on Feb. 1st he went out for a walk. On Sunday, Feb. 2nd, he again went out, the house-surgeon not being aware that there was a bitter east wind. This he felt a good deal, and the next day his face was noticed to be swollen and red. This had increased on the following day, when Mr. Heath saw him, and it was evident that an attack of erysipelas was coming on. The patient was at once placed in a separate ward, and active treatment adopted. The erysipelas spread, however, and affected the throat, so that on Feb. 7th he was able to swallow but little, and was becoming rapidly exhausted. By the use of the stomach-pump, however, nourishment was introduced into the stomach, and he rallied for a day or two. Symptoms of pyæmia, however, now manifested themselves, and the patient rapidly lost ground, and, after lingering for a week, died on Feb. 17th.

At the post-mortem examination, the incisions in the face were cicatrised; but the site of the tumour was granulating, and encrusted with mucus in parts. On removing the brain, it and the membranes were found perfectly healthy; but the plate of bone between the frontal sinus and the cranial cavity was so thin that it broke in the removal of the brain. There was no appearance of any remnant of tumour either in the frontal sinus or elsewhere, the walls of the large cavity left by its removal being healthy. In the thorax there was abundant evidence of pyæmia, the lungs being filled with pyæmic abscesses. The tumour weighed nine ounces, and consisted of a loose cartilaginous material enclosed in a bony cyst, from which spicula were sent into the interior. At two points, and particularly at the most prominent portion of the tumour, the bone was of considerable thickness. The tumour was exhibited at the Pathological Society, and was referred to a committe of investigation, which pronounced it to be an enchondroma undergoing ossification.

## LONDON HOSPITAL.

### A CASE OF ACUTE RHEUMATISM COMPLICATED WITH DELIRIUM TREMENS; RECOVERY.

(Under the care of Dr. Ramskill.)

On a recent visit to this hospital we saw the case to which brief reference is here made. It seemed to us worth noting, because, in a prognostic point of view, the explanation of the occurrence of delirium in the course of rheumatic fever is important. The utility of the thermometer was well shown in this case. It will be seen by reference to the subjoined table that the temperature never rose to any great height during the continuance of the delirium on the 4th and 5th of March. This moderation in temperature was of itself sufficient to show that the case was not one of those in which the occurrence of delirium is the rapid precursor of death, for in these there is uniformly a very sudden and remarkable rise in temperature, the thermometer often reaching 107°. 108°, or even 109°. The subject, it will be remembered, was lately discussed in the Clinical Society of London, and cases were brought forward by several members in which a sudden rise of temperature and the occurrence of delirium were followed by death in the course of a few hours. In the presence instance the intellectual disturbance was doubtless due to alcoholism.

Mr. George Mackenzie, the resident medical officer, kindly supplied us with some details of the case and the thermometrical observations.

The patient was a sailor aged forty, and was admitted on the 3rd of March, 1868. For a few weeks previous to admission he had been feeling "queer and out of sorts," and for the last ten days had had pain in the left foot and ankle, with feverish symptoms and sweating.

On admission this was his state: Lies on his back; face dusky; lips bluish and rather tremulous; manner fidgety; tongue tremulous and rather dry; no appetite; is very thirsty; right hand swollen and red, and rather painful; left knee swollen.

During the night he wandered a good deal and passed his urine in the bed. He talked incessantly, and was under the impression that he lay upon "a bed of salt, with a bed of salt above him." He chattered a good deal about his occupation, spoke of "seeing a sailor go over the side," &c. Without being able to obtain any history of the case, the question to be decided was as to the nature of this delirium; was it symptomatic of rheumatic meningitis or of delirium tremens? For two days and a night this delirium continued. From his admission on the 3rd till the evening of the 6th he did not sleep, although taking a quarter of a grain of morphia every four hours, which was commenced on the 4th. He had milk, beef-tea, and four ounces of brandy.

During the night of the 6th and the greater part of the 7th he slept and snored loudly. On waking he was quite sensible; the delirium did not again return. His skin was hot and sweating, and all the characteristics of acute rheumatism were well marked. Dr. Ramskill ordered him on the 7th fifteen-grain doses of bicarbonate of potash three times daily, and this was afterwards continued.

We saw him on March 18th. He was then in a fair way towards recovery. Heart-sounds were rather feeble; second sound somewhat accentuated at base. It seems that he had landed in England from a voyage on Dec. 9th, and since that time he had been drinking a good deal, chiefly porter and stout, consuming perhaps eight or ten pints daily, with a little spirit, gin or brandy-and-water, at night.

The following table shows the progress of the case:—

| | Temperature. | Pulse. | Respirations. |
|---|---|---|---|
| March 3rd, evening ... | 101·2° ... | 100 ... | 28 |
| 4th, morning ... | 100·2 ... | 112 ... | 28 |
| evening ... | 100 ... | 124 ... | 28 |
| 5th, morning ... | 101·5 ... | 112 ... | 28 |
| evening ... | 103 ... | 120 ... | 24 |
| 6th, morning ... | 102 ... | 112 ... | 28 |
| evening ... | 103·4 ... | 128 ... | 28 |
| 7th morning ... | 101·3 ... | 104 ... | 28 |
| evening ... | 102 ... | 112 ... | 32 |
| 8th, morning ... | 101·4 ... | 108 ... | 28 |
| 9th, morning ... | 101·6 ... | 112 ... | 28 |
| evening ... | 101·6 ... | 112 ... | 32 |
| 10th, morning ... | 101·8 ... | 104 ... | 32 |
| evening ... | 101 ... | 112 ... | 28 |
| 11th, morning ... | 102·2 ... | 120 ... | 28 |
| evening ... | 101 ... | 120 ... | 28 |
| 12th, morning ... | 100·6 ... | 116 ... | 24 |
| evening ... | 101 ... | 116 ... | 36 |

These figures were almost repeated daily till the

| | | | |
|---|---|---|---|
| 17th, morning ... | 100·6 ... | 108 ... | 24 |
| evening ... | 100-5 ... | 112 ... | 24 |

## POPLAR HOSPITAL.

### TWO CASES OF POISONING BY ALCOHOL.

Fatal cases of poisoning by alcohol are not at all common. In the following (for an account of which we are indebted to Mr. Oliver Penfold, resident surgeon to the Poplar Hospital), the symptoms and Post-mortem appearances were similar to those which have been noted in other cases. These are worth recording, if it be only as a help towards accuracy of diagnosis in those difficult cases where there is coma, with a history of drink, and a doubt as to the presence either of concussion or poisoning by opium.

S—— and D——, West India Dock laborers, were brought to the Poplar Hospital at 7 P.M. on Saturday, April 18th, 1868. Both were insensible, breathing stertorously and slowly; faces blue; extremities cold; pupils widely dilated and insensible to light; pulses generally slow, ranging during four hours from 60 to 130. The breath smelt strongly of rum.

The statement made by those who brought them was that these two men had broached the cargo (rum and sugar) of a ship unloading in the West India Dock, and had been seen at five A.M., two hours previously, drinking rum out of a pint pot. D—— had vomited before admission, but S—— had not been sick.

Water was first pumped into the stomach, and its contents afterwards drawn out. From D——'s scarcely anything besides the water returned; but from S——'s stomach a yellowish-brown curdy mass was obtained, having a powerful odor of rum, and apparently consisting of sugar, food (meat and potatoes), and rum. After this, the cold-water douche, galvanism, ammonia, and artificial respiration were persevered in for four hours uninterruptedly, when S—— died. D——'s respiration being deeper, and the skin nearly natural in color, he was put to bed, and hot-water bottles were applied to the feet. He remained quiet until eight o'clock the next morning, when he awoke and complained of intense thirst. His eyes were bloodshot, and his breath smelt almost overpoweringly of rum. Water was given to drink *ad libitum;* and a mixture composed of an ounce of compound magnesia with sulphate of magnesia and a scruple of bicarbonate of potash was ordered to be taken every four hours. In the evening he still complained of thirst; pulse 60, with a sharp impulse; tongue dry, but clean; bowels opened freely; was rather restless all day. Twenty minims of tincture of opium were given. He slept fairly after this, and next morning was less thirsty. Took a draught composed of an ounce of compound chloroform mixture and ten minims of tincture of opium every four hours. On April 21st, two days after admission, he was discharged apparently well.

At an examination of the body of S——, held thirty-six hours after death, the following condition was observed:—Brain, lungs, liver, and kidneys highly congested; otherwise healthy. Heart enlarged; the left ventricle contained black fluid blood. Stomach enlarged; in it were about five ounces of a grumous pasty mass. The mucous membrane mottled here and there by patches of a light-red color. Intestines congested. A large black clot blocked up the inferior cava for two inches near the diaphragm. The bladder contained urine, four ounces of which were drawn off: it was of a pale-straw color, having a faint garlic-like odor; acid reaction; sp. gr. 1018; a few drops of nitric acid added to it, and heated to boiling, produced a coagulum equal in bulk to one-eighth of fluid used; under the microscope were seen numerous epithelial casts of various size and shape, and much bladder-epithelium.

# HOSPITAL OUT-PATIENT PRACTICE.

## MUSCULAR RHEUMATISM.

We have used this term because it is that which is commonly applied to the painful and often troublesome condition of which we desired to compare the treatment adopted by physicians who are accustomed to see large numbers of patients so affected. It seems to be often doubtful whether the disease as commonly so described, is really connected with "rheumatism," which it resembles only in that it is attended by pain, and s often consequent upon exposure to cold and lamp. But in these respects it is equally allied o neuralgia, and it would perhaps be more proper o class the conditon under this head.

### ST. MARY'S HOSPITAL.

Dr. Broadbent's treatment of the acute forms of scular rheumatism is chiefly local. For "stiff ck" he prescribes a stimulant and opiate lini-nt; turpentine and laudanum, and sometimes loroform, added to the linimentum saponis. is is ordered to be rubbed in warm on the af-ted part with as firm pressure as the patient l bear, so that the muscles may be kneaded as l as the skin reddened. A warm flannel is rwards to be put round the neck.

n lumbago he applies a large sinapism across loins, followed by hot linseed poultices or a cession of linseed poultices, on the surface of which mustard is sprinkled. Turpentine stupes do equally well; but he finds that the poor do not manage them progerly at their own homes. Rest is enjoined; but the patient is not ordered to remain in bed, the act of turning in bed putting a strain on the lumbar muscles, and causing much pain. If the bowels are confined, and there is any febrile action, a saline and alkaline aperient is given. In the later stages of an acute case, or in the more chronic forms, the emplastrum picis or emplastrum roborans replaces the poultices, and a flannel belt is recommended. Iron is also usually given internally.

Chronic pains in the loins and limbs, which, being seated in the muscular structures, and worse during or after exertion, are often called chronic muscular rheumatism, Dr. Broadbent has found to be due to various causes, and associated with various conditions of the system. Very commonly these pains are merely the expression of debility and overwork. But in washerwomen, who in washing and hanging out clothes are exposed to moisture and to chills, the muscles of the arms and shoulders, and in gardners and men who work in the streets, the muscles of the loins and lower extremities, are sometimes the seat of chronic pain of a severe character, which may fairly be called rheumatic. An obstinate lumbago again is sometimes a result of lead-poisoning and may be the only symptom attending it. The treatment varies accordingly. Cod-liver oil, stimulating liniment to the limbs where debility seems to be the main cause; warm baths and shampooing or Turkish baths, if the patient can procure them, flannel under-clothing, in addition to liniments, &c., when exposure to wet and cold has given rise to the rheumatism. Alkalies and iodide of potassium do not seem to be of much service. Cod-liver oil does good, and sometimes guaiacum has appeared to be useful. In the lumbago arising from lead-poisoning, iodide of potassium is given to carry the metal out of the tissues, and afterwards cod-liver oil and iron, or the oil may be taken at the same time with the iodide.

Dr. Broadbent has in several cases known muscular rheumatism to be closely simulated by inflammation about the nerve-roots as they issue from the spinal column, and has obtained the best results from a blister applied along the region affected. These we propose giving more fully in a future report.

### MIDDLESEX HOSPITAL.

Muscular rheumatism, in the ordinary acceptation of the word, is a term applied to at least two or three classes of cases. Their symptoms are alike, inasmuch as they consist of pain referred to the muscles; but their causes and treatment are quite distinct.

The first class has nothing whatever to do with rheumatism, though it still retains a name which implies the contrary. It is most commonly met with in persons, both old and young, suffering from general debility; but not necessarily with any constitutional tendency to rheumatism, or to the deposit of lithates in the urine, which, on the contrary, is often neutral and phosphatic. Its principal feature is the peculiarly aching character of the pain, which most commonly occurs in the muscles of the extremities and back, more especially those of the arm and shoulder, and is, in fact, a continuous and exaggerated form of the pain familiar to everyone after unusual muscular effort. It is the result of an over-fatigued state of the muscles, as is indicated by the fact that rest and support to the aching limb invariably relieves the pain. Dr. Robert Liveing finds that the only successful plan in treating this malady is the administration of tonics, of which iron and and cod-liver oil are the most efficacious. Friction, with anodyne liniments, such as the opium liniment combined with extract of belladonna, is also beneficial, and to this must be added rest and good food; while the treatment with alkalies and purgatives, which is often adopted, is worse than useless.

The second form of muscular pain commonly met with is really of rheumatic or gouty origin. It occurs in those who are more or less subject to rheumatism of the joints, who have had perhaps one or more acute attacks, and whose urine is acid and often loaded with lithates. Ordinary lumbago is a good example of this malady in one of its severer forms; but in milder and more common cases it is nothing more than a sharp pain in the muscles, without much constitutional disturbance, though it is often premonitory of an attack of rheumatism. The best mode of treatment is to keep the part affected thoroughly warm, and the internal administration of bicarbonate and nitrate of potash and magnesian purgatives. In these cases local friction, with stimulating liniments, such as the camphor liniment, combined with chloroform, may be advantageously used.

Lastly, pains referred to the muscles of the trunk, especially those of the back, are often of a reflex kind, and similar to the well-known pain between the shoulders which is caused by gastric irritation, or the still more common lumbar pain from uterine disturbance. But though in these cases the seat of the mischief is in some other organ, requiring its own special treatment, yet it is remarkable that the local application of anodynes, as for example, a good belladonna plaster, is almost invariably followed by relief to the sufferer.

### CHARING-CROSS HOSPITAL.

Cases of muscular rheumatism are very frequent among the laboring men who attend as out-patients at Charing-cross Hospital, especially those who have been much exposed to wet and cold. Dr. Headland regards the treatment necessary as of two kinds, specific and palliative. The antidote to the rheumatic poison is potash; and Dr. Headland generally administers the bicarbonate in doses which are proportional to the severity of the case. In acute cases half a drachm is given every four hours; in chronic cases, unattended with fever, ten to fifteen grains three times a day will be sufficient. The latter dose may be continued for weeks or months, and is generally followed by an improvement or by a radical cure. Dr. Headland never gives iodide of potassium in rheumatism, except where there is a certainty or a suspicion of venereal taint. When rheumatic pains cannot be relieved by potash, it is generally because the nervous irritation has lasted so long that neuralgia or neurosis has taken the place of the inflammatory action first caused by the acid poison. In these instances, Dr. Headland has much faith in minute doses of belladonna or atropia.

Warm baths and vapor baths are often of use in muscular rheumatism. The *materies morbi* is got rid of in the acid sweat. There are other modes of treatment applicable to particular cases. Thus, in lumbago, the warmth and support afforded by a tight flannel belt is of great service. In sciatica, which is often aggravated by the pressure of a loaded bowel on the nervous trunks in the pelvis, we may give purges of aloes, turpentine, or croton oil.

The palliative treatment is chiefly local. Simple friction, or a stimulating liniment, will do good in chronic cases of long standing. A liniment of opium or belladonna, or a plaster of either, may be used when the pain is aggravated by pressure.

As a last resource, repeated blistering over the part has proved successful in Dr. Headland's hands, when other treatment has failed. A grain of morphia, sprinkled over the raw surface, afforded relief in a case of extraordinary severity.

### KING'S COLLEGE HOSPITAL.

In selecting a method of treatment for so-called muscular rheumatism, Dr. Duffin is guided by the following consideration—the duration of the muscular pain, its intensity, and the area it involves. Should the annoyance not date back beyond a week, be confined to a few muscles, and be of no great severity, he employs local counter-irritation in the form of sinapisms or the application of the turpentine liniment of the Pharmacopœia. The latter he advises to be used in the shape of a stimulating fomentation, by stirring it into boiling water in the proportion of two ounces to the pint, and then applying flannels soaked in the hot mixture to the part affected. This application should be made before the patient goes to bed, and may with advantage be followed up by a linseed meal poultice. Diaphoretics, in the shape of Dover's powder, full doses of the solution of acetate of ammonia, &c., are simultaneously administered. Should the pain from the first assume a severe type, or its invasion be very sudden, dry-cupping has proved of great value, applied energetically, and followed, if need be, by stimulating embrocations. In a few cases of unusual severity, the subcutaneous injection of morphia has been found to answer, either where all forms of counter-irritation had failed, or where dry-cupping was inapplicable. When the complaint has already assumed a chronic form, Dr. Duffin advocates the use of blisters. These should produce their full vesicant effect to be of service, and may be repeated if necessary; but he does not deem that any advantage is to be derived from keeping them open. In inveterate cases, iodide of potassium and guaiacum administered internally have rendered the most undoubted service; but if the pain be strictly localised, free-counter irritation should first be tried. Neither the alkalies, as the solution of potash and the carbonates of potash and soda, nor the nitrate of potash, seem to have yielded in Dr. Duffin's hands the good results that had been anticipated; but of the value of the iodide of potassium he is able to speak with some confidence. Dr. Duffin regards these pains as really arising in the fibrous envelopes and septa of the muscles; in so far, then, the term commonly applied to them would be a misnomer. That these pains are aggravated by muscular action, or may even be exclusively induced by this, does not afford sufficient proof that they originate in the muscular substance. He further remarks that the pain seems the only bar to freedom of movement; once that is alleviated, the motility of the part directly returns. In treating these cases, the chronic aches of exhausted and anæmic patients must be discriminated. These Dr. Duffin treats by the aid of ferruginous and other tonic preparations internally. He has also found great advantage from the local employment of belladonna, either in the shape of liniment, extract or plaster.

### ST. THOMAS'S HOSPITAL.

Cases of muscular rheumatism are very numerous amongst the out-patients of this hospital. A large proportion of them work either in the tan-yards of Bermondsey or on the banks of the Thames, or in some damp and low-lying district. The affection is mostly chronic when application is made, but a too early return to work frequently induces an acute relapse. Dr. Clapton generally treats cases of acute lumbago with a mixture of sulphate of magnesia, carbonate of magnesia, and wine of colchicum, three times daily, and Dover's powder at bedtime. The patient is also directed to have the loins bathed with a sponge or flannel wrung out in very hot water; a piece of warm dry flannel being subsequently applied. In the more chronic stage, iodide of potassium, with perhaps potash and bark, internally, and belladonna plasters, are chiefly relied upon. For pleurodynia, a mixture of quinine and henbane is generally found more efficacious than colchicum, alkalies, or iodides; but if there should be febrile disturbance, citrate of potash with henbane is given before the quinine. For external use, ammonia liniment or mustard plasters are ordered. In very chronic cases the guaiacum mixture has frequently been found beneficial, but in the earlier stages it is apt to induce feverishness, and even an increase of pain. Other forms of muscular rheumatism are treated according to their severity and the constitutional conditions of the patients.

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**Improved Mode of Embalming.**—A probably exaggerated account of M. Marini's discovery has been published by a French paper, *Les Mondes*. It would appear that M. Marini succeeds in preserving parts of or the whole body, with all the solids and fluids of the living organism, such as muscle, blood, brain, &c., either in a mummified or petrified state. He can, besides, when the desiccation has not been carried too far, bring the mummified portions back again to their original volume and look, so that an arm, for instance, may be transformed after many months into the same state as that observed a few hours after death. Indeed, the paper above alluded to gravely says that, in Corsica, M. Marini preserved the body of a deceased far-famed historian to such a degree that, four months after death, he managed, by his reviving fluid, to give again to the corpse all the appearance of life, so much so as to place it in a chair for photographic purposes. The Emperor and Empress of the French are said to be delighted with the discovery, which statement will in all likelihood be taken by most people *cum grano salis*.

# Medical Societies.

JUNE—JULY.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Mr. Samuel Solly, F.R.S., President.

### A CASE OF DOUBLE AXILLARY ANEURISM SUCCESSFULLY TREATED BY THE LIGATURE OF BOTH SUBCLAVIAN ARTERIES.

UNDER THE CARE OF

E. J. FURNER, F.R.C.S.,

Surgeon to the Sussex County Hospital.

*(Communicated by* Sir Wm. Fergusson.*)*

John P——, aged thirty, a laborer on the Brighton Railway, accustomed to very laborious occupation, was admitted into the Sussex County Hospital on October 22nd, 1866, under the care of Mr. Furner, with a large aneurism of the right axillary artery. The tumour measured seven inches in length by five inches in breadth, the clavicle being greatly pushed up by the size of the aneurism. Mr. Furner tied the subclavian artery in the third part of its course, in the usual manner, and also a large artery, the transversalis colli, which had an abnormal origin, arising direct from the subclavian artery. No unfavorable symptom occurred for the first twelve weeks after the operation (the ligature from the transversalis colli came away on the fourteenth day, that from the subclavian on the twenty-fourth day), when suppuration of the sac took place, and upon a free incision being made through the pectoral muscle, a discharge of about eighteen ounces of most offensive matter and broken-up coagula took place. From this time the patient continued daily to improve, and he left the hospital cured on March 20th, since which time he has enjoyed good health, and has been able to resume his usual laborious occupation.

In June, 1863, Mr. Furner tied the left subclavian artery in the same patient, for an axillary aneurism. The same irregularity of distribution of the transversalis colli occurred, and was tied. The case was published in the *Medical Times and Gazette* of October 24th, 1863. Chloroform was not used in either case. The principal interest in this case consists in the fact that it is the only one recorded where both subclavian arteries have been tied in the same patient.

After a few remarks from the President on the desirability of early operation,

Mr. J. Wood thought that the great merits of the paper were its interest and its brevity. He believed that the ligature of the jugular vein gave rise to some of the subsequent bad effects, and it was treated in the paper almost as a matter of course. He held that it gave rise to a double danger. From the position of some of the sinuses he should think that they were owing to the tying of the jugular. It was often difficult to avoid interfering with the vein, and then it was better to ligature it than to cut it. He also thought that the subclavian in the second part of its course gave off a large branch, generally the posterior scapular, sometimes along with the superior scapular, and the two together might be mistaken for the main artery. The practice of tying this was good. If the subclavian were tied without reference to the existence of this branch, the collateral circulation might be too soon set up, and pulsation in the tumour return. It should always be looked for, as it existed in about one half of the cases, and, if found, should be tied.

Mr. H. Lee thought, on the other hand, that tying the jugular was a bold and judicious proceeding, seeing that the aneurism lay so deep. The vein, by pulling about, must have been inflamed, and the blood would have been contaminated.

Mr. Cooper Foster thought that we were always too much afraid of tying a vein. He was of opinion that it was better to tie the jugular than to pull it about. A bad case had come into Guy's that morning; a femoral aneurism had ruptured, and a ligature would have saved the patient. He had recently read a similar case before the Clinical Society. The great rules were, in cases of ruptured femoral to cut down and tie; of popliteal, to amputate.

Mr. Birkett remarked that many of his cases went against the notion that one aneurism was necessarily followed by another, as some patients he knew had been at their work for ten or fifteen years with no return. As to ligaturing veins, he approved of it in this case, but not generally. In one case, where a tumour was removed from the neck with considerable difficulty, the veins were much pulled about, but no bad results followed.

Mr. J. Wood explained that his views were to avoid interfering with the vein if possible, as in this incision it ordinarily lay towards one extremity of the wound, and was easily avoided. If it was fairly in the way, the lesser difficulty was to cut.

Mr. C. H. Moore had seen the subclavian tied by a curved incision with the convexity downwards. He thought it a good plan. He also thought that Syme's plan of scooping out the contents of the sac was the best in such cases.

Mr. Blaker, on behalf of Mr. Furner, explained that the jugular was tied in both instances; in the first because the tumour could not be got at without doing so, in the second on account of his former experience.

### ON AN EPIDEMIC TYPH FEVER IN TRINIDAD.

BY R. H. BAKEWELL, M.D.,

**President of the Medical Board of Trinidad; Visiting Physician to the Leper Asylum, Trinidad.**

The author stated that during the year 1867 an epidemic of fever had occurred in Port of Spain, Trindad, which differed in many respects from any other fever which in the experience of the oldest medical practitioners had ever before visited the island, but which in all essential points was the typh fever of Europe.

Port of Spain is badly built, ill drained or undrained, overcrowded town, containing upwards of 18,000, for the most part persons of the very dirtiest habits, many of them living very poorly, and all, except the educated classes, firmly convinced that night air is deadly, and therefore closing every nook and cranny in their houses at night.

Among this population a fever appeared, which for the first few days was in almost all cases distinctly intermittent, or remittent, which then became continued, and which gradually subsided into an intermittent again. With the ordinary symptoms of fever there was in nearly every case at the commencement vomiting of bile or worms; sometimes of both. In a few cases there was also a diarrhœa of pure bile. As the fever became continued one of two sets of symptoms occurred; either there was tenderness in the right iliac fossa, gurgling, and general abdominal uneasiness, mostly with the usual pea-soup diarrhœa, or the head was attacked, and the bowels were constipated, sometimes obstinately so. In some cases the delirium and insomnia were very severe. The delirium was occasional maniacal, and in two cases took the form of a resolute refusal of all food and medicine with clenched teeth. In the other, the so-called typhoid cases, the diarrhœa was often very severe. In nearly every case lumbrici were passed, often abundantly. No rash could be distinguished in the majority of cases on account of the color of the patients, but in no case was a true lenticular rose-colored spot seen. In a few cases there were the small purple spots of typhus. In one fatal case in which these were seen there were no abdominal symptoms or lesion; in the same house there were three cases of typhoid. Ulceration of Peyer's patches, &c., was found after death.

The author stated that, having for several years adopted Dr. King Chambers' plan of treatment for fever in England, he determined to adopt it in the West Indies, and give it a fair trial. Out of 103 cases, of which a table was given by Dr. Bakewell, 90 were treated by Dr. Chambers' plan modified slightly to meet the exigencies of the climate. Of these 90 only 3 died, and one of the three was under treatment two days, and having been under the care of another practitioner. The remaining 13 were, for various reasons fully given in the paper, not treated by Dr. Chambers' plan. Several of them were *in extremis* when first seen; one refused all medicine; two were attended before the disease was accurately diagnosed.

The slight modifications of Dr. Chambers' treatment were that in every case of insomnia opiates were freely given. No patient, if it could be prevented, was allowed to pass two consecutive sleepless nights. Astringents were given when the diarrhœa was very severe, but not otherwise. Small doses of tincture of aconite were given to children, combined with the acid, the author having by eight or nine years' experience satisfied himself that aconite possesses a peculiar power of allaying febrile excitement in children.

The treatment was pursued under every disadvantage. Probably in not six of the cases was the beef-tea given regularly. Wine was only given, as a rule, after the fever had begun to intermit for the second time; no form of alcoholic stimulant was given at the commencement of the fever.

The paper was accompanied by a table of 103 cases with remarks, and some of the important cases were given more at length in the paper itself.

Dr. A. P. Stewart remarked that the paper would have been more satisfactory had we known something of the climate conditions. Probably these had been the same for years. There had in this country been remarkable outbreaks after heat followed by heavy rains. The post-mortem appearances showed clearly the disease was typhoid, although intermission in convalescence was rare in this country. If so, the treatment was remarkably successful. The percentage of young people affected was against the typhoid view.

Dr King Chambers thought the disease might have arisen from the removal of some of the worst nuisances, although there was no notice of this. He also thought that change of treatment might give rise to change of symptoms, and that many of the so-called symptoms of tropical disease might arise from calomel. The author had not distinguished between typhus and typhoid, but the treatment was good for both. Its value was shown by the fact that on the old plan his percentage mortality was about 19½ per cent., on the new about 2½ per cent.

Mr. Hinton corroborated the statement as to the number of persons in the West Indies affected with round worms. He also thought that much of the difference presented by tropical fevers was due to treatment, but certainly not the whole.

Dr. Goodfellow had read Dr. Chambers's paper and thought his former mode of treatment too officious. The plan introduced was not new; he himself had employed it for twenty years.

### ON TUBERCULAR PNEUMOTHORAX.

BY R. DOUGLAS POWELL, M.D., M.R.C.P.

1. There is a constant tendency in phthisis to the occurrence of pneumothorax, though this tendency is commonly counteracted by the adhesions which take place between the pleuræ.

2. The softening down of tubercular masses and the ulceration round them are the commonly recognized causes of the production of pneumothorax; but this phenomenon is sometimes produced by a different morbid process, which results in the formation of a sinus analogous to those leading from diseased bone or old abscesses in limbs.

3. The character of the dyspnœa in pneumothorax resembles more that of cardiac than pulmonary disease.

4. The most important physical signs are hyperresonance, with suppressed or very feeble respiration on the affected side, and displacement of heart to the opposite side.

5. The intensity of the symptoms in pneumothorax, and likewise the prognosis, are dependent on—1st. Condition of lung at time of rupture. 2nd. Nature of the opening. 3rd. State of the other lung. 4th. Previous condition of the patient.

6. Though in all ordinary degrees of long collapse the pulmonary circulation is not appreciably affected, yet, in the complete collapse of the lung in pneumothorax, the circulation through it is greatly impeded.

7. The air-pressure within the pleural cavity in cases of pneumothorax has not hitherto been ascertained. In five experiments made post-mortem by the author, it varied from two inches to six inches of water.

8. The result of the impediment to the circulation through the affected lung is a disturbance of the relation normally existing between the pulmonary and systemic circulations. This disturbance is in a measure compensated for by the capacity of the venous, and more particularly of the portal, system, admitting of considerable accumulation of blood, and consequent retardation of its return to the right auricle.

The indications for treatment are dependent upon the different modes in which death may occur—viz.: By asphyxia, from pressure on lung causing obstruction to the circulation; by shock; by exhaustion.

The principle methods of treatment to be considered are: Paracentesis; bloodletting, by opening a vein or cupping; purgation, by hydragogue cathartics; opium administered by mouth, or by subcutaneous injection of morphia; stimulants.

Dr. W. Ogle remarked that since the time of Louis it had been customary to say that the left side was the one most commonly affected; but he had examined the reports of his own hospital, and found that out of twenty-four cases reported fourteen were on the right and ten on the left side. He thought that great stress had justly been laid on the physical rather than on the general symptoms, for the latter might be almost absent, as the condition existed in one case related by Sir T. Watson, without the patient being aware of it. In one of his own, the patient, being a blacksmith, used to hear the splashing in his chest when he used his hammer. A man came in to have his leg amputated. He had no cough, yet his lung was found to be completely compressed. In one case an opening through the lung was formed; but at the spot where it pierced the lung a thickening of the pleura existed, which did not give way, but formed a sort of sac. The explanation of negative pressure, he thought, would hardly meet the case. In every instance he had seen the bad side distended, so that the lung must be compressed in like manner.

Mr. Brooke said that the quantity of fluid appeared to be diminished by pressure. This was in accordance with natural laws; for if a tube was repeatedly doubled, the current through it would be diminished. So it was with the capillaries; their calibres would also be lessened by the pressure.

Dr. Hare related a case of pneumonia at the apex of the lung in a girl of eighteen. There was much consolidation, followed by softening, which extended, and fluctuation was felt between the first and second ribs. There was great dyspnœa. Soon after a quantity of intensely fetid fluid escaped by the mouth, and resonance of the part followed. An opening between the ribs was made, which gave great relief. The lower portion of the lung was intact. She gradually recovered, and was quite well fourteen years after.

Mr. Edwards remarked that operation was sometimes undesirable, and that when desirable the difficulty of diagnosis was greatest. He had ordinarily seen such cases in greatly advanced phthisis. They were not so common as one would expect.

Dr. Powell, in reply, stated he had only repeated Louis's statements; in reality the numbers at Brompton were about equal.

### SUBGLOTTIC GOUTY DISEASE OF THE LARYNX, REQUIRING TRACHEOTOMY, SUBSEQUENTLY DEGENERATING INTO CARCINOMA; WITH A COMMUNICATION BETWEEN THE TRACHEA AND ŒSOPHAGUS.

BY SIR G. DUNCAN GIBB, BART., M.D. LL.D.,

Assistant-Physician and Lecturer on Forensic Medicine, Westminster Hospital.

The author remarked that in the second edition of his work on Diseases of the Throat he had drawn attention to the subject of œdema of the larynx in its supraglottic and subglottic anatomical relations, and abolished the old term of "œdema of the glottis" for reasons there given. The diagnosis of either form of œdema could be made with the laryngoscope, which would guide the treatment to be pursued. The nature of the effusion differed in the two forms of œdema: in the supraglottic it was serous; and in the subglottic, as a rule fibrinous. As his views had never been called in question, he took it for granted they were accepted by the profession as correct. He now brought forward a new condition of subglottic disease of the larynx, partaking of œdema in its latter stages, but occurring as a consequence of gout, and requiring an operation to save life. The case in illustration was that of a clergyman, aged fifty-eight, who consulted the author in September, 1863, for hoarseness and aphonia, and who had been subject to gout since the age of seventeen—being seldom free from, although not actually a martyr to, the disease. He drank a bottle of sherry daily. His voice, always powerful, was equal to three octaves; and he had worked hard at his vocation. The varying aphonia and hoarseness had been present eighteen months, following forcible exertion of the voice in his church when suffering from a cough. He had been comparatively well otherwise, but had taken much colchicum for his gout. Latterly cough had been persistent, with pain in the throat, and liability to take cold. The voice was decidedly hoarse and rough, though low in tone, and sounded croupy, and as if there was obstruction within the larynx. The laryngoscope showed pendency of the epiglottis, chronic tumefaction and redness of the interior of the larynx, and distinct folds or swellings of the membrane below the vocal cords in the subglottic space. Under topical and general treatment all this improved, but the subglottic swellings remained ill-defined, though distinctly visible on the right side. In April, 1864 he had great dyspnœa, associated with bronchitis; and had been ill again with his throat for some weeks, the result of cold and gout together. The glottis was now found so much contracted, and the obstruction from œdema so great in the subglottic region, that tracheotomy was performed by Mr. Holthouse, with immediate relief, although done under difficulties from the shortness of the neck and the almost steel-like ossification of the rings of the trachea. In a little while he returned to his home in the country, and went about as usual. He was still subject to gout, and frequent attacks of bleeding from the wound in the neck. In the beginning of 1865 cancerous disease showed itself in the neck, throat, and larynx. On March 23rd the disease opened into the pharynx, and a fistula formed, which allowed liquids and solids to pass into the trachea, proving fatal on 17th May. After death, a large passage was found between the larynx and the fundus of the pharynx. The larynx was blocked up with scirrhous masses, and in the subglottic space the irregular growths or prominent folds at first seen were blended with the cancer. All the viscera were healthy. The author had no doubt that the subglottic disease was originally fibrinous œdema, induced by the gout, which had attacked the larynx.

Mr. Bruce remarked that there was extreme hardening of the same parts in the subject (gouty) he was using for operative surgery.

Dr. Greenhow asked if this was true gouty disease of the larynx. He had seen several cases, but was accustomed to associate with them the peculiarities of intense redness and slight swelling, and that they entirely recover with an attack in the extremities. He believed the disease was rather malignant.

Dr. Green asked why the subglottic swelling was described as fibrinous.

Dr. R. Thompson asked if the urine had been examined.

Sir Duncan Gibb, in reply, stated he had no doubt of the gouty nature of the disease, of which he held that dependent epiglottis was an indication. He called the deposit fibrinous from dissection, and following Cruveilhier. The urine always contained much uric acid and oxalate or lime.

## OBSTETRICAL SOCIETY OF LONDON.

### Dr. Braxton Hicks, Vice-President in the Chair.

Dr. Murray exhibited for Professor Byford, of Chicago, a new Pelvimeter. The instrument is a modification of Baudelocque's Callipers, and by its aid the different diameters of the pelvis can easily and accurately be taken.

Dr. Meadows exhibited for Dr. Tanner two Ovarian Cysts, which had been removed by ovariotomy; and although they were believed to constitute the right and left ovaries, yet the patient had menstruated regularly up to the time of their removal, the last period having ceased about a week before the operation.

A discussion ensued, in which Dr. Barnes, Dr. Hewitt, Dr. Tyler Smith, Dr. Snow Beck, Mr. Chambers, and Dr. Murray took part. It was generally considered either that a portion of one of the ovaries must still remain and be in a healthy state, or that the cysts removed and exhibited were really cysts of the broad ligament separate and distinct from the ovaries themselves. Dr. Meadows was requested kindly to watch the case and report if menstruation again took place.

Dr. Aveling, of Sheffield, exhibited a new form of Short Forceps, the peculiarity being that the handles were much curved backwards, by which modification they were more out of the way of the operator, and a better grasp was obtainable.

Dr. Murray communicated for Mr. E. Asbury a

### CASE OF RUPTURE OF THE UTERUS OCCURRING DURING LABOUR.

This was the patient's third confinement, and the two preceding ones had been easy and natural. She had been in labour but a few hours when the accident happened. The labour had been without complication, and the only difference between her condition on the present occasion and in her previous confinements was, that there was now a much greater abdominal enlargement than existed then. The rent in the uterus was transverse, about four inches in length, situated laterally and not far from the fundus. The edges of the laceration were inverted, and at the seat of rupture the walls were very much thinned. The author considered the cause of rupture to be over-distension of the uterine walls, whereby they had become thinned and weakened, and that possibly degeneration of muscular fibre had also taken place.

Dr. Barnes believed that Dr. Murphy was one of the first to describe a softening or other alteration of the uterine tissues as the cause of rupture. Since then the tissues had been often examined. He himself had carefully examined the tissues in three cases of rupture, and he had found no more degeneration than that normal amount of granular change of the fibre-cells which always existed towards the end of pregnancy as a preparation for solution of the tissues about to become superfluous; certainly then, although degeneration of tissue might sometimes be present, it was not a constant or a necessary condition. He had asked if the child in the case related had been dead some time before the rupture. He had known this to be the cause of rupture. Where the child was long dead, it had lost its resielincy and its fitness for being driven through the pelvis, and thus might become as efficient a cause of obstruction as even a narrow pelvis.

Dr. Graily Hewitt thought it likely that the abortion which had occurred had an influence in producing the irregularity in the thickness of the uterine walls in the case related. The undue size of the head was also an important element in the case. As a matter of practice he believed it very difficult to ascertain in the early part of a labour whether the head was unduly large or not, but it was a matter of some moment in reference to cases such as this. The rupture of the uterus which occurred in this instance could not have been anticipated, and it would appear that the treatment adopted was most prompt and appropriate.

### A CASE OF CÆSAREAN SECTION.

BY J. BRAXTON HICKS, M.D., F.R.S.

The operation was performed by Dr. Hicks on a deformed woman, aged thirty-seven, who did not come under his observation till past the seventh month of pregnancy. The pelvis was found to be of the malcosteon type; and although the brim was much distorted, yet, had the outlet been good, delivery might have been effected through it. Yet, as the bony outlet was very much narrowed, the parts very rigid even when examined under chloroform, Dr. Hicks, after careful consideration, thought that the balance of chances was in favor of Cæsarean section rather than craniotomy, because it might have necessitated Cæsarean section after all. The length of the abdomen was very small, pushing the fundus of the uterus forward, and this would have added to the difficulty of employing the crotchet, which would have been the only tractor capable of being used. The operation was done in the usual way under chloroform at the eight and a half month, two doses of secale preceding it. No difficulty arose during its performance. The uterus contracted well without hæmorrhage. The wound was not closed with sutures. Vomiting came on immediately, which caused expulsion of the uterine discharges through the wound. This subsided gradually till thirty-six hours after the operation, when the discharges ceased to flow per vaginam; but vomiting having recurred, they were extruded through the lower part of the external wound. From this time tympanitis came on, and rapid pulse with vomiting. A catheter was passed up the os uteri and then a tent, but no further secretion took place per vaginam. She sank about ninety-six hours after the operation. About twelve hours before death, the tympanitis having distressed her exceedingly, Dr. Hicks tapped the flatulent intestine with a very fine trocar and canula, letting off a large quantity of flatus to her great relief, so much so, that when it had reaccumulated, she begged to have the tapping repeated, which was done with the same result. The child lived a month and died of thrush. The post-mortem showed a general blush over the peritoneum; no blood in cavity; a trace in the line from uterine opening to the external wound; a patulous everted wound in uterus; a long cervical canal, not impervious; the uterine cavity entirely clear and healthy. Dr. Hicks dwelt in his remarks—first upon one disadvantage of operating before labour had set in, from the tendency to closure of the cervix; and secondly, on the question of closing the uterine wound or not. He thought that had the wound been closed in this case, the serious complications would not have occurred. If it were found practically that the stitches were torn out, perhaps one might take a hint from some of the successful cases where the uterus had adhered to the parietal wound, and suggested that we might carry the same suture through the external and uterine walls, whereby the intrusion of the uterine secretions into the peritoneal cavity would be prevented; at any rate, it could not make matters worse than they now are. He then considered the state of the uterus with two holes in it, one three times the size of the other. There was, when any pressure, as of vomiting, occurred three times at the least greater tendency to flow out of the wound than from the cervix, and there was much more tendency in the cervix to contract than the wound. He thought the vomiting from chloroform a great danger in these cases, and inclined with Dr. Greenhalgh to the use of the ether spay. He finally remarked upon the mode of tapping the bowel in extreme tympanitis, that he had employed it in four cases with great relief and without any mark of the operation afterwards either by inflammation or extravasation of fluid or gas.

Mr. Spencer Wells said that when he first suggested the use of sutures to close the opening made in the uterine walls, at a meeting of the Society in 1863, as a means of preventing the escape of blood or other fluid into the peritoneal cavity, and thereby lessening mortality after Cæsarean section, he had not tried the plan, nor had it ever been tried, so far as he knew. And some speakers at that meeting thought the sutures not only unnecessary, as the uterine contractions would close the opening, but might be injurious by setting up metritis. But in 1865 he had put the plan into practice in the only case in which he had performed Cæsarean section. The case was published in the journals of that year, and he had recently seen the woman quite well. He used a long piece of silk as an uninterrupted suture, leaving one end hanging out through the cervix and vagina. By pulling on this end the suture was removed after several days. It served a useful purpose, also, by maintaining drainage of the uterine cavity downwards. Perhaps in cases of ruptured uterus the patient would have a better chance of recovery if the child were removed through the abdominal wall, and the uterine opening closed by suture, than if the child were removed by tedious obstetrical operations.

Dr. Barnes observed that the pelvis seemed to be an example of Naegelé's *pelvis obliquè-ovata*, as well as being generally contracted. He did not believe that in this case anything could have been gained by dilatation. He had never forgotten the case related by Dr. Tyler Smith, some years ago, in which he had been able to complete delivery after craniotomy by dilating the pelvis. The possibility of opening up an osteo-malacic pelvis, so as to make room for the passage of the child, should always be borne in mind. He remembered a most interesting illustration. A young physician had invited a number of *confrères* to witness a Cæsarsean section. Everything was prepared for the operation, when Osiander requested permission to examine the patient. He examined so well that he dilated the pelvis, turned, and extracted a living child, and thus baulked the operator of his operation. With reference to the question of delivery by craniotomy in the case under discussion, he was firmly convinced that, if it had been possible, Dr. Hicks would have done it. The demonstration he had given in that room of the mode of performing craniotomy by taking off the calvaria, and bringing down the face, was enough to show that Dr. Hicks was prepared to carry out the operation to the extremest possible cases. But this mode was adapted to cases of pelvis flattened from behind forwards than to such a case as the one before the Society.

A paper was read by Mr. Rowling on the

### HISTORY OF THE FLORENCE NIGHTINGALE WARD IN KING'S COLLEGE HOSPITAL.

The author commenced by relating the circumstances under which the Nightingale Ward was founded, for the purpose of instructing duly-qualified midwives to be employed in attending on the poor under proper medical surpervision. He referred to the conditions upon which Dr. Arthur Farre, at that time physician-accoucheur to the hospital, had insisted, before consenting to take charge of the ward, and described the arrangements for securing, as far as possible, the safety of the patients. The most elaborate precautions had been taken by Dr. Farre for the purpose. The long ward was only employed for convalescent patients. There were two separate delivery wards, which were used alternately for three weeks at a time, and in the interval the empty room was thoroughly cleansed and disinfected. Each patient had 3200 feet of breathing air. All students engaged in dissecting, or in attending the surgical practice of the hospital, were prohibited from entering the ward. Mr. Rowling then proceeded to give the statistics of the deliveries, and showed that, in spite of every care, the mortality had increased each year; the average mortality since the ward was opened having been 1 in 28 9 cases. He described the causes of two deaths that had occurred and their most prominent symptoms, and finally mentioned that this great mortality had determined the hospital authorties to close the department altogether.

Dr. Barnes said that no paper was more deserving of record in the Transactions than this, in order that it might stand as a warning against the repetition of the most disastrous experiment related. It had been said that history repeats itself; but why did history repeat itself? Simply because her plainest lessons were willfully disregarded. Was it necessary, at the sacrifice of the lives of so many women, to repeat an experiment which ample experience in every country had over and over again proved to be so fatal? He felt bound to say that this tendency to repeat a fatal mistake was more the fault of the lay members of society than of medical men. He did not suppose that any physician in the room would now advocate the establishment of a lying-in ward in a general hospital. Dr. Farre had never approved of it. He himself had strenuously resisted a proposition at one time contemplated to establish a similar ward in the new St. Thomas's. A lying-in hospital was bad enough, but a lying-in ward attached to a general hospital was a sin against humanity. Was it not shocking to offer in the name of charity to poor women looking to you for help, a succor that would only too probably be charged with death. So deeply had the mortality of lying-in hospitals, even of those constructed with every care that modern research could devise, impressed many of the most eminent men in Paris, that, the expediency of suppressing these hospitals and of substituting home-midwifery was now admitted. In his conversations with continental professors he had found few who contended that hospitals were desirable for the patients. The general argument for hospitals was that they were necessary for the purposes of instruction. Well, we taught midwifery here and we saved our women.

Dr. Graily Hewitt wished to make one remark on this subject. Lying-in hospitals, as they had been organised up to the present time, were most undoubtedly objectionable. The secret of the successful treatment of lying-in cases was isolation. The moment cases were congregated together in one apartment, puerperal fever was likely to be generated. If the patients were isolated from each other by suitable means, and in suitable buildings, there was no reason why the mortality should be higher in a lying-in hospital than elsewhere, but in the existing hospitals these precautions had not been attended to.

Dr. Playfair said that he could most cordially agree with all that Dr. Barnes had stated as to the dangers of lying-in hospitals in general. It must not be supposed that because a mid-wifery department had been established in a general hospital, that the obstetric staff were in favor of the experiment. They had all along recognised the great danger to lying-in patients in such a situation, and it was on their urgent representation that it had been closed. As long as it existed they had done their best to make the hygienic arrangements as perfect as possible, and now that it had been closed they had made no attempt to conceal the disastrous results of the experiment. The position of the ward itself was peculiarly unfortunate, being situated at the top of the hospital, above two stories of wards, and by the side of the large central staircase, which, acting as a ventilating shaft, of necessity carried past it air saturated with the emanations of the surgical wards below. It would doubtless have been much better if the ward had originally been placed on the basement story. The out-break of puerperal fever constantly coincided with the presence of erysipelas in the surgical wards, and this seemed to be a conclusive argument against the theory broached in a late paper read before the Society, that zymotic diseases were not modified in the puerperal patient. In none of the cases were the symptoms at all those of erysipelas, although the latter disease had attacked a child whose scalp had been injured by the forceps, and doubtless from the same poison as had given puerperal fever to the mother.

Dr. Phillips exhibited a specimen of Retro-Uterine Hæmatocele.

Dr. Greenhalgh exhibited a specimen of Hypertrophied Nympha, removed by the écraseur.

Dr. Playfair related the particulars of a case in which a woman, suffering from carcinoma uteri. attended with much induration and rigidity of the cervix, had aborted of a dead fœtus at the fifth month. The fœtus, which had been extruded piecemeal, was exhibited.

The President exhibited the membranes of a twin ovum of a supposed ten weeks' gestation, which he had removed from a patient the subject of exhausting hæmorrhage. The fœtuses had been expelled eight days before, but their envelopes were retained, and were adherent to the anterior and posterior walls of the uterus respectively. They were extracted entire by the ovum forceps, and the hæmorrhage had not recurred.

Dr. Protheroe Smith exhibited an instrument which he had devised to facilitate the extraction of hair-pins from the female bladder, and which in a recent case he had used with complete success.

A paper was read by Dr. Copeman (of Norwich), "On some of the difficulties encountered in determining the existence of Pregnancy." Five cases were given in detail, in all of which considerable difficulty had been at first felt in deciding on the question of pregnancy, owing to the presence of some one or more abnormal conditions, but in all of which the author had been enabled to form a correct diagnosis mainly by detecting the "placental souffle" by auscultation. This sound, Dr. Copeman said, had never deceived him, and he expressed his surprise that in a recent work Dr. Hewitt had stated that no dependence whatever was to be placed upon it as a sign of pregnancy. He, on the contrary, believed it be one of the most valuable signs of pregnancy, second only to that of the fœtal heart, and the most dependable of all signs when the child was dead.

Dr. Graily Hewitt thought the uterine souffle one of the signs of pregnancy which were not absolutely "reliable," and in this sense he had deprecated attention to it. In some of the cases now related, other observers had failed to hear it when it was evident to Dr. Copeman's more practised ear. He still believed it to be capable of simulation by other sounds, and in that sense of the word, "non-reliable."

### ON PUERPERAL FEVER IN THE BRITISH LYING-IN HOSPITAL; WITH REMARKS ON THE TREATMENT OF PUERPERAL FEVER.

DR. GRAILY HEWITT, M.D., F.R.C.P.,

Professor of Midwifery at University College, late Physician to the British Lying-in Hospital.

In this paper the author detailed his experience of puerperal fever in the British Lying-in Hospital; and laid before the Society certain views respecting the treatment of the disease there and elsewhere. The mortality in the hospital from *all* causes was in the first place attended to. The statistics adduced extended from 1849 to 1866 inclusive. Married women only are admitted. The hospital now in existence was first used for patients in 1849. Of the four principal wards, two had a cubic capacity of 6552 feet each; the two others of 5616 feet each. These wards were tolerably isolated, and ventilated by fireplaces and open windows. During the time the author held office there, the practice was to allot four patients, unless under extra pressure, to each ward. The in-patients were attended alternately by Dr. Murray and the author for periods of three months. During the seventeen years 1849–1866, the total deliveries were 2438; the total maternal deaths 25. The percentage of deaths was, therefore, 1·02 from *all* causes. The causes of death were set down as follows:—Puerperal fever, or disease closely allied to it, 16; hæmorrhage, instrumental labours, chest affections complicating labour, and other diseases, 9. Of late years—1863–1866—the number of deliveries had much increased, being nearly double those of previous. years. In one year (1864) there were 199 deliveries without one death; in 1865 there were five deaths and 232 deliveries. On taking charge of the hospital in 1862, the author, in conjunction with Dr. Murray, reduced the number of patients in each ward from six to four. In the next place the author adduced particulars of all the cases of puerperal disease in which there appeared to him reason for designating the case as puerperal fever, or closely allied to it, during a period of nine months, including three periods of three months each. Some of these attacks were slight, some more severe. Particular attention was directed to three patients in the same ward attacked on Dec. 28th, 1864, with almost identical symptoms, one two days, and two two days, after labour. A fourth in the same ward had severe sweatings. In three of these cases the attack gave way rapidly to treatment; the fourth was dangerously ill for many days, but ultimately recovered. There were in all, during these nine months, 23 cases in which, in the author's opinion, the illness—often, it is true, temporary—could only be regarded as of the nature of puerperal fever. The identity of the symptoms in the slight and in the grave cases was the basis of this conclusion. For the most part, as initial symptoms, were noticed pain and tenderness in the uterine region, quick pulse, prostration of vital power, in almost all cases rigor, generally well marked; subsequently, if the attack did not give way, abdominal swelling, great prostration, hurried respiration, and threatening of death. Herpes labialis occurred in several cases. One only of the 23 cases died: this patient was admitted, previous to setting-in of labour, for great prostration from chest-disease; and she died of exhaustion two days after labour, the contents of the uterus being in a putrescent state. As to the nature of puerperal fever, the opinion was expressed that it is a form of pyæmia, the result of the introduction of a poisonous material into the circulation, the point of entrance being generally the inner surface of the uterus or the vaginal surface. The poison may be introduced from without, or be the result of changes occurring within the uterus itself. Enlargement of the uterus had been noticed in many cases of the disease. On the question of the treatment of the disease, Dr. Graily Hewitt stated that the plan pursued by him was to enforce great cleanliness, to give a liberal diet from the first in all cases, as preventive measures, and when labour was at all protracted, brandy was given during as well as after the labour. Beef-tea, eggs, and milk at once; meat on the second day. When any symptom appeared of a suspicious character, the case was at once treated as one of puerperal fever, as follows. The binder was directed to be closely and accurately applied, to prevent collection of lochia in the uterus, and facilitate its contraction: hot turpentine stupes to the abdomen, also to relieve the pain, for which purpose the light binder also gave most universally good results. Every four hours, thirty minims each of tincture of lavender, chloric ether, aromatic spirit of ammonia, and compound tincture of camphor. Brandy with water or egg at once, in varying quantities—in a mild case, six to eight ounces per diem; but as much as two ounces every two hours was given when initial symptoms were very severe. Nourishment in good quantities very frequently, chiefly liquid—milk and eggs, and beef-tea most relied on. Every half hour something was given in the worst cases. Aperient medicines religiously avoided, unless the rectum was obviously loaded. Experience had convinced the author of the bad effects of brisk purgatives in such cases. Later on the same treatment was, if necessary, continued, with the addition of twenty to thirty minim doses of tincture of iron in some cases, and in some cases of turpentine enemas. Promptly and thus treated, the disease had almost invariably given way. Since the year 1862 the author had treated the disease boldly and thoroughly on the stimulant plan, having first observed its extraordinary effect in a woman who, being extremely ill, took every day for over a week at the rate of a bottle of brandy, besides nourishment in good quantities, and recovered. Some also of the cases now related were very bad ones. If the disease be allowed to go on unchecked for two or three days, this stimulant plan may fail, the important point being to treat the affection promptly. Intra-uterine antiseptic injections the author thought highly of, but they were not employed in these cases. Lastly, the conclusion drawn as to the question of the propriety of lying-in hospitals was that they can only be safe when patients are isolated absolutely from each other, where, in fact, the conditions approximate to those present in home attendance.

Dr. Snow Beck remarked that the cases read were unsatisfactory, none presenting the diagnostic signs of puerperal fever. Again, cases from which deductions were drawn should be recorded with sufficient detail to enable anyone to say whether they were trustworthy or not. In the present instance this had not been done. Dr. Beck had been mentioned as having shown to the Society cases of enlarged or relaxed uterus as connected with this disease. But this was not so. What he had done was to show that the sinuses were pervious throughout to fluids gently injected into the pelvic veins, and even this had been shown many years ago by Dance. The previous state of the sinuses was important, as it was of little use the open orifices being bathed with sanious fluids if the sinuses were not open to allow the fluid to enter the general system. There were no facts, so far as he was aware, to show that deleterious infection took place from the surface of the vagina or the general surface of the uterine cavity. In all cases where he had seen the plan of treatment by excessive stimulation adopted it had been decidedly injurious, and the most successful had included the administration of those substances which counteracted the effects of the injurious impregnation, the sulphites &c., and washing out the interior of the uterus.

Mr. Squire remarked that not only in puerperal fever, but in its allied diseases, hospital gangrene and erysipelas, and in diseases where a septic influence was traceable, the sustaining system of treatment with stimulants throughout, and the use of such remedies as iron and quinine, was the right one. This was illustrated in the cases adduced, all of which resulted in recovery: that they were cases of this kind, if their history and the details given by Dr. Hewitt were not enough, his own judgment and experience sufficed to distinguish them from the ordinary accidents of the puerperal state.

Dr. Playfair could only say that he fully concurred in the view which attributed the mortality which had taken place in the Nightingale ward (to which reference had been made) to the poisoned air of a general hospital. The facts that the outbreaks of puerperal fever coincided with the presence of erysipelas in the surgical wards, and that the women who died had no symptoms of erysipelas as such, while one of the children in the ward suffering from an abrasion of the skin had well-marked erysipelas, seemed sufficiently to controvert Dr. Beck's theory as to the diseases having no connexion with each other.

Dr. Braxton Hicks said it was not difficult to understand that if the system be poisoned by matter engendered within, the same matter introduced from without could also produce the same symptoms. If puerperal fever were to be so limited, then it was highly important that researches should be made as to the connexion of the various diseases classed as puerperal fever. He had seen abundant personal evidence, at least as strong as any admitted valid in medicine, to show the connexion of these diseases.

The President, having so recently expressed his views on the subject of puerperal fever, would now only very briefly reiterate his conclusions. There should be no doubt whatever that it was a highly contagious disorder; that it was communicable to a puerperal patient, not only through its own contagious emanations, but through those from scarlet fever, measles, typhus, erysipelas. The identity of the disease with erysipelas in some epidemics had been proved by the late Dr. Rigby, as well as by others. Dr. Rigby observed, in one epidemic, that the infant of every patient who had died of puerperal fever perished from erysipelas. Various sources of putrid emanations,—viz., the putrid lochia, especially of women congregated in hospitals, gases from open sewers, putrid matters from dissections, and from hospital sores, had been rife causes of the disease. The paper, while showing that some little good might be done by an early and judiciously energetic supporting treatment in some cases of the fever, at the same time furnished additional evidence of the dangers to puerperal women in lying-in hospitals.

Dr. Graily Hewitt, in reply, would simply state that the greater part of Dr. Beck's observations on the paper appeared to be formed on a misapprehension of the facts and statements therein. The facts, however, were before the Society, and it was for them to draw conclusions as to their import and value.

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## PATHOLOGICAL SOCIETY OF LONDON.

MR. SIMON, F.R.S., President, in the Chair.

Dr. Hilton Fagge exhibited two patients affected with

VITILIGOIDEA AND CHRONIC JAUNDICE.

One of them was recently a patient under Dr. Habershon at Guy's Hospital; the other had been under Dr. Pavy's care, and is now an out-patient under Dr. Fagge. After remarking on the peculiar characters of the affection, Dr. Fagge observed that it is not confined to the skin. He showed that the mucous membrane of the mouth undergoes a similar change, and that (as has long been known) some of the tubera on the knuckles are developed in the extensor tendons, and not in the skin. The connexion with jaundice is more intimate than has hitherto been supposed. This connexion existed in three of the cases recorded in the original paper of Dr. Addison and Dr. Gull, and also in three cases which have since been under observation at Guy's. The remaining two of Dr. Addison's and Dr. Gull's cases—in both of which jaundice was absent—Dr. Fagge considered not to be examples of the same affection. The jaundice itself is peculiar. It lasts for several years, often without the skin undergoing the usual change from a yellow to an olive-green color. The bile-ducts are not obstructed, the motions being not necessarily paler than in health. Dr. Stevenson has made an analysis of the urine, from which it appears that biliary coloring matter is present, but neither bile-acids nor any unusual ingredient, such as leucin or tyrosin. The liver is enormously enlarged in this disease, but it is impossible to say what is the nature of the change in the organ, as no post-mortem examination has hitherto been made.

Mr. Marsh showed a

TUMOUR REMOVED FROM THE TENDON OF THE RECTUS FEMORIS, JUST ABOVE THE PATELLA.

by Mr. Paget. Its surface was nodulated, and as there was no movement between it and the patella both were removed. In a few weeks the wound nearly healed, when the patient went to the country, but soon returned much worse, and the limb had to be amputated. A medullary mass was found projecting from the bone, and on examination the tumour, which had previously excited little attention, was found to be of the same character. It was rare to find such tumours springing from tendons, and rare to find them going on for seven years, as this had done.

Mr. Spencer Watson showed a specimen of

ATHEROMATOUS ULCERATION OF THE AORTA,

with complete occlusion of the left subclavian. It was removed from a man aged fifty-six, who had suffered from oppression at the precordium, and difficulty of moving about. Pain extended down his left arm. The left coronary was also closed.

Dr. Farquharson exhibited for Dr. Spry, of the 2nd Life Guards. a specimen of

PERFORATION OF THE ARCH OF THE AORTA,

produced by swallowing a piece of bone. At first the trooper complained of nothing except a sensation of having swallowed a piece of gristle, which was not removed by an emetic. The man died suddenly in a few days after vomiting a large quantity of blood.

# Editorial

## COHNHEIM'S EXPERIMENTS ON INFLAMMATION AND SUPPURATION.

AN elaborate article on Inflammation and Suppuration was published towards the close of last year in Virchow's "Archives," by M. Cohnheim, which presents several points of great interest both to the physiologist and pathologist. M. Cohnheim commences his essay by referring to the observations of previous inquirers, and especially to those of His and Strube, upon the nature of the inflammatory process, and the production of pus in the cornea, a tissue that, from its transparency is well adapted to permit the various changes occurring to be followed out. According to these observers, in keratitis the connective-tissue corpuscles of the cornea increase in size, and either by fission or endogenous multiplication form new cells, by which the opacity is produced and which are, in fact, pus-cells. On repeating and modifying their experiments, Cohnheim soon found himself compelled to dissent from their conclusions, as microscopical investigation of the inflamed cornea showed him that, though numerous pus-corpuscles were present, the proper connective tissue corpuscles of the cornea might also be discerned for the most part in an unaltered state. On discovering this he immediately applied himself to ascertain the source of the pus-corpuscles. Two modes of origin seemed to be possible. They might result from the multiplication of certain peculiar corpuscles resembling lymph-corpuscles, which present amœboid movements, and which have been described by Recklinghausen as commonly present in the corneal tissue; or they might have a foreign origin, and only be deposited or find their way into the corneal tissue—a possibility which is borne out by other experiments of Recklinghausen, in which a portion of a cornea inserted into the lymph sac of a frog was found to be infiltrated with lymph-like corpuscles. As a reagent he employed, and strongly recommends, an aqueous solution of chloride of gold (half per cent.), with a few drops of acetic acid, which colors the nerves and cellular particles red, blue, or violet, whilst it is without action on the intercellular substance.

M. Cohnheim's first experiments were performed on the corneæ of frogs. Inflammation was excited by touching them in the centre with a point of nitrate of silver, the contact being maintained sufficiently long to destroy the epithelium completely, and to affect the corneal tissue. The point touched, at first white, soon becomes brown, and after the lapse of from twenty to twenty-four hours, is surrounded by a hazy ring, separated from the central eschar by perfectly transparent corneal tissue. Soon a few diverging greyish striæ extend towards the upper border of the cornea, which after two or three days, form a triangular patch with the apex at the eschar, and a little later a similar patch appears below. In the course of five or six days these nebulous patches clear up from their base at the periphery of the cornea, and there only remains a whitish ring around the eschar. On following these changes with the microscope the central eschar is found to present intercellular substance, stained brown with the caustic, with white stellar and anastomosing figures of fine vasa serosa. In the halo round the eschar the matrix is granular and yellowish; the proper corneal connective-tissue corpuscles are also granular and present few prolongations; and there are, lastly, a few pus-cells. In the grey striæ pus-cells also appear between the connective-tissue corpuscles, and always most numerous near the periphery of the cornea. In a little while the pus-cells seem to clear away from the periphery, and to accumulate around the eschar, obscuring alike the matrix and the connective-tissue corpuscles; whilst coincidently with their disappearance the connective-tissue corpuscles once more appear in a nearly unaltered state, giving the impression to the observer that these have only been overwhelmed or overrun and concealed temporarily by a swarm of wandering particles. On repeating these experiments on the rabbit similar results were obtained. These results, in his opinion, favored the notion of the pus-corpuscles taking origin external to the cornea itself. To test this view he bethought himself of a plan already employed by Recklinghausen, and injected anilin-blue into the lymphatic sacs and into the aortæ of frogs; and in all cases some of the white corpuscles of the blood and some of the pus-corpuscles were found to contain particles of the coloring matter, while these were scarcely ever found in the connective-tissue corpuscles of the cornea. Hence it seemed probable that some at least of the pus-corpuscles had been previously white corpuscles of the blood which had made their way into the corneal substance. Similar experiments on rabbits failed, apparently because the colored corpuscles were stopped at the liver in consequence of the retardation of the blood-current through that organ. His next experiments were made on vascular parts, and he chose the mesentery of frogs poisoned with woorara. Sufficient inflammation was excited by merely exposing the membrane to the air, which produced first hyperæmia, and after the lapse of twenty-four hours the exudation of a thin, dull-grey, gummy layer or fibrinous pseudo-membrane. On following these changes under the microscope, the arteries are seen to be at first about one-fourth smaller than the veins. In a few minutes they begin to dilate (attaining their maximum in from one to two hours) and to become tortuous. Then the veins dilate and the circulation is altogether retarded. In the inflamed condition, under the very eyes of the observer, numerous colorless blood-corpuscles accumulate in the plasma or marginal transparent layer of the veins, where they either remain stationary or slowly oscillate. In a little while small colorless projections, about half the size of a white corpuscle, are seen on the outer wall of the veins. These subsequently become pyriform, and ultimately detach themselves from the vessels appearing as colorless contractile amœboid corpuscles with one or several nuclei; the whole process being accomplished in from one to two hours. Similar phenomena appear in the capillaries, so that at various points the vessels are surrounded by masses of white corpuscles that appear to have exuded from the plasmatic layer of the blood-current through the solid-walls of the vessels, and to have become free in the adjoining tissues. Careful observation of vessels injected with nitrate of silver has induced Cohnheim to admit the existence of small openings or stomata between the epithelial cells forming the tunica interna. When they have once passed through these openings, the migration of the white corpuscles becomes easily intelligible, as all the remaining coats contain much connective tissue, through the lacunæ of which their progression is easy. A few red corpuscles sometimes escape from the capillaries; but this only occurs when the pressure of the blood is much increased. The exit, or, as he terms it, the emigration of the white corpuscles occurs when there is only retardation of the blood-current. Analogous experiments, undertaken on the mesentery of etherised rabbits and cats, led to results which, upon the whole, were similar.

From this account, therefore, it would appear that pus-cells proceed for the most part, if not altogether, from the white corpuscles of the blood, which, by a process of emigration through minute lacunæ in the vascular walls, leave the vessels, and accumulate around them and in the spaces of the neighboring tissues. No evidence has as yet been obtained that the white corpuscles, which have thus escaped from the blood-current, can by fission or endogenous multiplication, generate new ones; yet it seems by no means unlikely that this may occur. Some objection may be raised to this view on the score of the immense number of pus-cells developed in various forms of inflammation; but this may be answered by admitting that the average number of pus-cells in the blood is much under-estimated. And Cohnheim further observes, that no evidence exists of the formation of pus-cells where there are no vessels; and, finally, that genuine suppuration never takes place in cartilage, which is the only kind of connective tissue that is destitute of spaces or lacunæ through which corpuscles can make their way.

# Medical Annotations.

"Ne quid nimis."

### THE NEW ANÆSTHETIC (?)

A VERY opportune discussion took place at the Medical Society of London, on April 13th, on the so-called anæsthetic nitrous oxide gas. A question on the subject addressed to the President—Dr. Richardson, whose authority on such a point cannot be questioned,—drew from him a clear and careful summary of its action. It was painful, he remarked, to see the childish excitement with which nitrous oxide and its effects had recently been dwelt on. The gas had been treated as an unknown, wonderful, and perfectly harmless agent; whereas, in simple fact, it was one of the best known, least wonderful, and most dangerous of all the substances that had been applied for the production of general anæthesia. No substance had been physiologically studied with greater scientific zeal or more rigid accuracy; and no substance had been more deservedly given up as unfit and unsafe for use. It had caused death in the human subject, and on animals it was so fatal that, with the utmost delicacy in its use, it was a critical task thoroughly to narcotise an animal with the gas without actually destroying life. In some cases, also, animals died after recovering from the insensibility.

Respecting the mode of action of the nitrous oxide, Dr. Richardson explained that it was not, in the true sense, the agent that caused the insensibility. It acted indirectly, and the immediate stupefier was really carbonic acid. In fact, nitrous oxide is an asphyxiating agent. There are two explanations of this. It may be that the nitrous oxide quickens the oxidation of blood, and so causes accumulation of carbonic acid in the blood; or it may be—and this is most probable—that it acts by checking the outward diffusion of carbonic acid. The vapor density of nitrous oxide and of carbonic acid is the same—namely, 22, taking hydrogen as unity; and as diffusion of gases into the blood and out of it is governed by the same laws as in ordinary diffusion, to make an animal breathe nitrous oxide is virtually equivalent to making it breathe carbonic acid itself, the diffusion of carbonic being so determinately impeded. The living phenomena were also in character: the arterial blood was rendered venous by nitrous oxide; the animal temperature fell; the skin became livid. And although these symptoms might be induced many times without actually destroying life, they could not be sustained for any length of time without certain disaster. Dr. Sansom followed in nearly the same strain.

In speaking out thus boldly to a professional audience, Dr. Richardson has not spoken a moment too soon. The *ad capcandum* method of applying the most potent medicinal agents against the teachings of scientific experiment and the experience of accepted observers, is a phase in physic which requires to be put down with a strong hand. Administration of nitrous oxide, or laughing gas, as it is commonly called, is becoming a pastime for amateurs. We hope these few and timely words will prevent a catastrophe. If they fail, the fault or neglect will not rest with us. In another part of the journal will be found an account of some additional experiments which have been made during the week.

### DR. AUSTIN FLINT ON ALIMENTATION IN DISEASE.

AMONG American physicians there are few who speak with more authority than Dr. Austin Flint. The February number of the *New York Medical Journal* contains an admirable paper by him on the subject of "Alimentation in Disease," read at a recent meeting of the Medical Society of the County of New York. We regret that we can only give an idea of the drift of this paper. Beginning with a eulogium on Chomel's definition of the art and practice of medicine as the application of good sense to the treatment of diseases, he proceeds to a personal vindication of that excellent, if not "common," quality, and thereafter to his subject. It is painful to think how many errors scientific men would have been kept from if they had given a little more play to their own good sense. On the subject of alimentation Dr. Flint is in practical accord with those physicians who have lately insisted on the importance of nourishment in the treatment of disease. After briefly summarising the natural history of starvation, he goes on to show that the phenomena of starvation are not confined to cases in which there is a complete deprivation of aliment—in other words, that these are degrees of innutrition—that degrees of it may be produced in diseased persons as well as in healthy ones—"that starvation is sure to occur in cases of disease in a degree proportionate to the lack of material for nutrition in the blood," with the same effects and phenomena which attend starvation in persons in previous health. Further, Dr. Flint shows that this starvation may supersede the disease, and kill the patient when the disease itself would not do so, or kill him sooner than if the effects of starvation had not been added to those of disease. Dr. Flint treats of the question of limitations of nourishment. He believes that, excepting perhaps in the early stage of acute disease, there is never any risk of hyper-nutrition, and thinks it "always desirable to supply aliment to the fullest extent of the capacity of the organism for appropriation." In both acute and chronic disease he recognises the importance of nourishment. "*In acute diseases the failure of the vital powers is forestalled in proportion as nutritive supplies are assimilated.*" In chronic diseases, "*no matter what may be the seat or nature of the chronic affection, a diet fully up to the capacity of the organism for nutrition promotes recovery, if recovery be possible; and if recovery be not possible, by increasing the ability of the system to endure the affection, contributes to prolong life.*" It is, of course, desirable to avoid over-alimentation; but this can easily be done, and, at the worst, the evils of it have been exaggerated. As practical rules for avoiding on the one hand over-alimentation, and on the other disorder of digestive organs, he suggests that alimentation must often be regulated without regard to indications afforded by appetite or taste. He advocates the allowance of a sufficient period for digestion and for rest, pleasant changes of food, great consideration for the peculiar cravings of patients as representing generally a want of nutrition. He opposes many popular errors on the subject, and speaks happily of the pampered idiosyncrasies of many persons on the subject of diet as a "strange manifestation of egotism." We have said enough to show that this paper contains a great amount of wisdom on an important branch of therapeutics, expressed in a happy and aphoristic style. Probably Trübner and Co. could supply our readers with the journal which contains the article, which is one well worth both reading and keeping.

### THE SYNDICATE OF CAMBRIDGE AND THE CLAIMS OF PHYSICAL SCIENCE.

At a meeting of members of the Senate of the University of Cambridge, held in the Arts School, on Friday, the 20th March, and adjourned till the Saturday following, the report of the Syndicate on the examination for mathematical honors was discussed. The Master of Peterhouse presided, and intimated that the features of the Syndicate's scheme were mainly the recognition of certain subjects in physics, such as heat, electricity, and magnetism, to which justice had not hitherto been done in the examination, and the arrangement of these in groups so distributed that all might have due weight in deciding the places of candidates. The rapidly increasing importance of the new subjects, and their application in the solution of the great problems of nature, were the grounds on which he vindicated their fuller introduction into the examination for mathematical honors. The report, he added, had been approved by authorities no less eminent than the Astronomer-Royal, who wrote to the effect that it was a well-considered and valuable document; Sir William Thomson, of Glasgow, who regarded the changes as being exactly what were wanted; Professor Tait, of Edinburgh, who thought its recommendations a step in the right direction; and Professor Fuller, of Aberdeen, who considered the new scheme an excellent one. Among the various arguments which followed for and against the report, there were none to enhance or weaken the conviction of the medical profession that the more fully physical subjects are interwoven with the purely Arts curriculum in our universities, the more fairly will those institutions fulfil their function at the present day. The medical profession has widened the qualifications of its members by making mathematics an integral part of their preliminary studies. Should not the teachers of Arts proper make a corresponding concession to the demands of the age, and render proficiency in one or two of the physical sciences imperative on all who prepare at the universities for a professional career? The number of those medical students who take the benefit of an education at the older universities before commencing their purely professional studies would be greatly increased if the report of the Syndicate at Cambridge were to have practical effect. What we want is a more stringently educated medical profession in such indispensable subjects as classics and mathematics, and a more completely educated theological and legal profession in such equally indispensable subjects as natural and experimental science. The great professional class of the country would then be more "liberally educated," in the true sense of the word, than it now is; its several sections would have more sympathy with each other than they at present entertain; the legal counsel would less seldom bully the medical witness; the clergyman would see that physical science was not the fatal antagonist to religious teaching that he too often supposes it; while the medical man would have much less frequent occasion to regret that the claims of inductive research and scientific truth so seldom get justice at the hands of the lawyer or the divine. We should hail the practical adoption of the report of the Syndicate of Cambridge as not only a piece of enlightened academic legislation, but as tending to tighten the bonds of professional sympathy, and to further the highest ends of all education.

### INDIRECT EFFECTS OF SUPPURATION.

A curious and important application of the new doctrine of the artificial production of tuberculous disease in rodent animals, by setting up severe local irritation in the integuments of the back of the neck, has, during the course of the week, been made in reference to the common practice of setoning young cattle. Dr. Sanderson's experiments show that, by placing a seton through the neck of a guinea-pig, so as to set up subcutaneous suppuration, a series of changes are observed in the internal organs—the lungs and liver especially—of these animals, when killed some time afterwards, constituting what pathologists call phthisis, or, in plain English, consumption. Mr. Syson, in *The Times*, implies that the same result must ensue in the bodies of those cattle which are setoned "to prevent the making too much blood." There are no facts at present in support of the assumption that the same effects would be produced by constant subcutaneous suppuration in the ruminants as in the rodents. It must first be proved that the *local* effects are the same in the two classes. In the guinea-pig, the produced disease in the internal organs depends, according to Dr. Sanderson, on the affection of the subcutaneous lymphatic glands, their overgrowth and fatty degeneration, and on the multiplication of foci of suppuration under the skin. It is not known whether such a state of things is produced after the use of setons in cattle.

However, in ruminants it is shown that such extensive suppuration as often occurs after inoculation for pleuro-pneumonia produces diseases of internal organs. There can be no question that the results of recent experiments go to prove that in any animal the maintenance of the suppurative process for a long time is likely to be attended with dangers; that its bad effects may extend far beyond the mere constitutional exhaustion which is its immediate result. Hitherto observers have been disposed to regard the dangers and evils arising from continued suppuration as merely immediate—in other words, dependent on its exhaustive effects. Now our attention is directed to more remote and more serious consequences; and on this point Dr. Dickinson's researches on the connexion between amyloid degeneration and suppuration throw some light. Above and beyond the cruel aspect of the case, the fashion of setoning cattle is one that, in the present tendencies of science, we must regard as provocative of serious disease in the internal organs of animals so treated.

### SOME ANOMALOUS EFFECTS OF ATROPINE.

In the current number of the "Royal London Ophthalmic Hospital Reports," Mr. George Lawson calls attention to some of the anomalous effects of atropine upon the eye. In several cases he has found the sulphate of atropia, so useful in general as sedative, act as a direct irritant, and in two which he relates very troublesome symptoms resulted. In one there was acute conjunctivitis, lasting several days; in the other, erysipelas of the lids, spreading to the face and head, was excited on two occasions, a period of six months intervening. The irritative effects occasionally witnessed from the use of a solution of sulphate of atropia have been generally ascribed to the presence of some free acid in the solution, but Mr. Lawson doubts the truth of this explanation, and very fairly points out that salts containing much more free acid, as *e. g.* the sulphates of zinc and alumina, are used daily in ophthalmic practice without producing the peculiar forms of irritation which he thus describes:—1st. A sense of smarting and heat in the eye, accompanied by redness and lachrymation. These symptoms may pass off in a few minutes, or they may extend over some hours, or even continue for many days. 2ndly. An erysipelatous condition of the eyelids and surrounding integuments, with redness and chemosis of the conjunctiva.

He believes that when atropine acts thus as an irritant, or produces peculiar and distressing symptoms, it is due to some idiosyncrasy on the part of the patient, which renders him intolerant of the alkaloid or of its salts, and, in some cases, of any preparation whatever of belladonna.

Mr. Lawson has drawn attention to a subject which is of great physiological interest. Is the influence excited here a direct one, or are the effects due to reflex action? The latter, probably, if the lesion is due to really "irritative" action. It is conceivable, however, that the effects are direct, and are determined by a more or less paralysed condition of the fibres governing the calibre of vessels, and the secretion from the lachrymal gland. If this be the case, it would be no accidental impurity in the solution employed, but the specific property of the alkaloid which would be the cause of the phenomena.

### SANITARY MEMOIRS OF THE AMERICAN WAR.

On more than one occasion we have had cause to refer in terms of commendation to reports issued by the United States Sanitary Commission, and containing information relative to the medical history of the late American war. The amount of information collected in regard to the campaigns induced the Commission to order the preparation of special memoirs on the hygienic expreriences of the war, and the first of a series has just been published, under the editorship of Dr. Austin Flint and is entitled "Contributions relating to the Causation and Prevention of Diseases, and to Camp Diseases, together with a Report of the Diseases amongst the Prisoners at Andersonville." We shall take an early opportunity of referring in detail to the work. Meanwhile, we may say that there is a good deal of information to be found within its pages relative to the influences that affect the physical endurance of the soldier,—to army alimentation, to the causes of camp disease, to the production of scurvy, and other matters of interest.

### DR. LIVINGSTONE.

The medical, the geographical, and the missionary worlds will alike be relieved and delighted at the confirmatory intelligence which has just been received as to the safety of Dr. Livingstone. Captain J. F. Wilkinson had learned from an elephant-hunter at Marico, that Dr. Livingstone had been seen by several of the natives near the Zambesi, that they had taken very kindly to him, and that he had dispensed with their services at the chief Retanga by giving them a number of presents. This was in the month of July last. According to the same authority, the doctor was *bien conservé* in every sense,—no attempt having been made upon his life. He had explored, it seems, "some very large river," and was retracing his steps when they left him. We shall await with interest Dr. Livingstone's personal narrative of his adventures. It cannot fail to provide us with valuable information, geographical, ethnological, and medical, of the "strangely-visited people" with whom he has been sojourning.

### THE HOLOCAUST OF BALLET-GIRLS.

Every trade has its special risk, if not particular malady; and to the miner's lung, the housemaid's knee, the painter's colic, and the printer's wrist-drop, must be added the Nemesis peculiar to ballet-girls. That Nemesis, indeed, is worse than any we have instanced. Its attack is immediate; its effect is almost uniformly fatal. It also differs from these in being quite preventable. The thin muslin dress in which the poor *coryphée* pirouettes is capable of being rendered by the tung-state of soda completely fireproof or non-inflammable, so that she may whirl past the lights with impunity, and without the impeding restraint which the dread of burning inspires. But managers will launch into the most extravagant outlay for the production of scenic effects, and never dream of taking this very simple precaution for the safety of the poor ballet-girl. Another case of the frightful consequences of this culpable neglect comes to us from Leeds. At the York Theatre there, a little girl, aged six years, was performing in a so-called "demon's dance," and during the performance came in contact with a candle placed near one of the wings. In an instant her muslin dress was in flames, and before one of the attendants could extinguish them she was so terribly burnt that she now lies in the County Hospital in a very critical state. How often, in the name of humanity, must we repeat the suggestion that the Legislature should interfere and compel managers to take the precaution which is at once so simple and so invariably neglected?

# News Items, Medical Facts, &c.

**The Japanese Feats.**—Those who want to know what can be done with human muscles should go to see the Japanese Company at the Lyceum Theatre. We have seen no such exhibition of the degree to which the beauty and poetry of muscular movements can be developed coincidently with strength and accuracy. The feats of balancing, and the playful imitation of butterfly movements, are beautiful physiological marvels. The qualities that are developed in these feats might easily be utilised, and the feats show that we don't do all that we might with our muscles and nerves. With scarcely an exception the feats are unobjectionable. They do not outrage physiology as some public performances upon which we lately commented did, but are the perfection of the muscular qualities of power, flexibility, and nicety. There is no doubt some risk to the performers, but very little indeed. High muscular education evidently gives a sense of strength and safeness which ordinary onlookers do not sufficiently take into account.

**New Mode of Compression of Arteries.**—Now that digital compression has done wonders, some surgeons find it so very tedious, difficult of execution, &c.; so M. Sarazin, of Strasburg, proposes to steady the limb by a starch bandage, and marking on the latter, when dry, the course, say of the femoral artery. Two fenestræ are now to be cut through the bandage where compression is to take place, and cork pads fitted into the fenestræ, the former rising two or three inches above the bandage. By rollers carried around the pads, and made more or less tight, compression is effected, the starch bandage preventing the rollers from acting upon the circumference of the limb.

**Prize of £800 in Italy.**—The Medico-Chirurgical Society of Bologna proposed, in 1862, a prize for the best essay on the progress of medicine and surgery during the present century, and the share of Italy in the same. No competitor appeared, and, in 1865, the subject being thought too extensive, was limited to surgery. This appeal remained again fruitless; and the Society, now recognising the importance of the subject, and wishing that such a work should see the light, combined several legacies, and offer a prize of £800 for 1870, to the author of the best production on the following theme:—"Show and estimate at its proper value the share belonging to Italians in the progress of the science and art of surgery, from the beginning of the 19th century to the present time.

**Unusual Law-suit in Italy.**—A Railroad Station master, aged fifty-two, and in good health, was told early in the morning, when hardly awake, that a robbery had been committed in the station. This sudden news had such an effect upon him, that he swooned away, never recovered consciousness, and died in twenty-four hours. The company and the Board of Trade considered that the man had met his death in the service of the shareholders, and that the widow and children were entitled to a pension. This, however, was disallowed by a superior court, who granted a mere gratuity. The widow appealed, and medico-legal evidence was so strong that at last the pension was granted.

**Dr. Wenzel Grüber** has published in the "Med. Jahrb.," Dec. 1867, a valuable essay "On Congenital Anorchidia in Man," wherein will be found an abstract of all the cases observed for the last 300 years. From recorded post-mortem examinations, Dr. Grüber finds twenty-nine reliable cases of congenital anorchidia; out of these there were twenty-two cases of monorchidia, and seven or eight cases of anorchidia on both side. He adds a description of two cases of his own: one of anorchidia on one side, the other of double anorchidia.

**Subcutaneous Injections of Sublimate in Syphilis.**—These have been proposed and practised by an Italian surgeon, who has recorded his cases in the *Annali di Medicina*, 1867. It would appear that this method has found an echo in Berlin. Dr. G. Lewin has treated 509 cases in this manner, and inserted the results in the *Charité Annalen*, 1868. The author, in many cases, combined other means with the injections. He has been pretty successful, and states that relapses have been fewer than in cases treated by the ordinary methods.

**Deficient Orthodoxy of the Medical Faculty of Paris.**—It would appear that a student named Grenier lately took for his thesis a subject bordering on materialism. This thesis was passed by the professors, but the Minister of Public Instruction interfered, and called upon the Faculty to withdraw the permission of publishing the work, and annul the degree conferred. This has been done, and of course every one wishes to read the thesis. All the copies have long been bought up, and scores of people are disappointed at being prevented from tasting the forbidden fruit.

A **half-yearly** Compendium of Medical Sciences has made its appearance in America, under the editorship of Drs. Butler and Brinton, and published at Philadelphia. It is based upon a plan similar to that adopted in the "Half-yearly Abstract" published in our own country. The principal journals of Europe are laid under contribution, and there is a good deal of American news also to be found in it.

**Infant Protection Society of Paris.**—The members of this Society are very active. The annual meeting was held a short time ago; rewards were distributed to meritorious wet-nurses, and the prize of £20 was awarded to Dr. Brochard, of Bordeaux, for his book on Maternal Nursing. The president, in a very impressive speech, expressed the hope that similar Societies would soon be formed both in France and abroad.

**Ovariotomy.**—Dr. Nussbaum, of Munich, whom we recollect seeing in London when he performed the journey to witness ovarian operations, has published the result of his own practice. Out of 34 cases of ovariotomy, he had 18 recoveries and 16 deaths. These figures are not so favorable as those published in this country; but the particulars of the cases would probably give the clue to the difference.

**The Effects of frequent Venesections.**—In the Carmelite convent of Mataro, Italy, there died, a short time ago, a nun, at the advanced age of eighty-seven, who had taken the veil seventy-two years before. She had been a great martyr to rheumatism, and had, for attacks of this complaint, been bled 317 times.—*Tribune Médicale* (of Paris), April 5th, 1868.

**The Milk of Syphilitic Nurses.**—Dr. Padova has inoculated this Milk on some healthy individuals; and, as the result of the operation was negative, he hastily concludes that this fluid has no infectious properties; forgetting that the milk placed under the skin, and the same secretion obtained by suction, and reaching the stomachs of children, are widely different in their effects.

**The Paris Sewers.**—It has been proposed to direct the contents of these to large reservoirs, at a distance, and to mix the fluid mass with alum; thus, phosphoric acic and the organic matter (nine-tenths of the whole) would be precipitated—The deposit to be used as manure, and the remaining liquid for irrigation.

**Medical Intelligence.**—Surely if a medical quack can be called a woman because he's a *Charlotte Anne*, a chemist might be called a ditto, as he is an *Anne Eliza* (analyser).—*Punch.*

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# THE LANCET.

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## A Lecture

ON THE

## ARTIFICIAL PRODUCTION OF TUBERCLE IN THE LOWER ANIMALS.

*Delivered at the Royal College of Physicians, May, 15th,* 1868,

By **Wilson Fox**, M.D., F.R.C.P.,

Holme Professor of Clinical Medicine, University College, London.

Mr. President and Gentlemen,—The question of tubercle has been on many occasions, and especially of late years, so ably and so fully dwelt upon in this College, that I should not have ventured to request permission to again address the Fellows on this subject, had it not been that recent investigations, partly commenced by others, partly continued by myself, have thrown some new light upon the etiology of the disease; and I believe that this is one of the fittest assembles to which any Fellow of the College can submit for criticism the results of his observations in medical science.

The subject has been already announced to you as a question whether tubercle be a disease artificially producible in the lower animals. There are many histories of early attempts to produce this effect, to which I must allude, but with which I shall not long detain you.

In the first place, in Baron's work on Tubercle, he stated that it was known to him and to Jenner that tubercle could be produced in rabbits by submitting them to a certain kind of diet. The form of that tubercle is depicted in Sir Robert Carswell's well-known plate of Tubercles in the Liver, which are now recognised to be entozoa. Subsequent experiments were made by Cruveilhier, which he believed to be successful, by the injection of mercury into the trachea, and by introducing irritating materials into the air-vesicles of animals. I have on one or two occasions repeated these experiments, and find the result to be, as I believe many others have done, simple lobular pneumonia, not tubercle.

Other experiments have been made by the injection of various matters into the bloodvessels. To the early ones of these, of which the details are imperfect, I shall make no allusion; to some of the later ones I shall have to request your attention shortly. The main objects, however, which I wish to lay before you to-day, are the results of experiments on the introduction of certain materials under the skin of animals, or, as it has been termed, *inoculation.*

After many unsuccessful attempts by various observers, and after Laennec had thought that an induration from an accidental puncture on his own hand, made while performing a post-mortem in a case of scrofulous disease of bone, might possibly be due to direct contagion of a tuberculous nature, Professor Erdt, in an investigation in 1834—to which he was led by the belief that scrofulosis in man and farcy in the horse had a certain analogy,—succeeded by inoculation of scrofulous pus into the nostrils of a horse in producing appearances akin to tubercle; these, however, at the time excited but little remark, and scarcely any attention was paid to them.

The attention of the medical public has been more especially drawn to the question by M. Villemin's experiments, the results of which were laid before the French Academy in 1865. They were performed upon rabbits, by the introduction of small pieces of fresh tubercle under the skin. M. Villemin's researches were continued in 1866, and a further paper was laid before the Academy at that time. He conducted his experiments in a philosophical manner. Choosing young rabbits in pairs, he inoculated one and left the other. He kept them under the same conditions, and found that the one under whose skin a small piece of tubercle had been introduced had tubercles in its body after a certain period of time. None of those not so treated were found to be in any way tuberculous, even when killed after a considerable period. M. Villemin performed also experiments with other morbid organic matters, all on rabbits. He inoculated in a similar manner the materials of anthrax, of phlegmonous abscess, cancer, pneumonia, the stools of cholera, and the material of typhoid; but with none of these did he produce the same effects. MM. Hérard and Cornil repeated a few times Villemin's experiments, but only on a very small number of animals. They state that they found the grey tubercle would produce this effect; the yellow not. In 1866 Lebert, in a paper also laid before the French Academy, confirmed Villemin's observations.

The next large class of experiments of this kind were made by Mr. Simon, and the results brought before the Pathological Society in 1867. Inoculated a considerable number of rabbits with tuberculous matter, and all, or nearly all, proved tubercular; the exceptions being some which died early from other causes. The specimens which he laid before the Pathological Society were submitted to the inspection of a committee, who pronounced them to correspond, in their opinion, with what is ordinarily received as tubercle in man. At the discussion which took place on that occasion, and subsequently at one of the lectures given last year in this place, Dr. Andrew Clark stated that he had succeeded on two occasions in producing similar appearances by the use of organic substances not tuberculous. That statement appeared to me to be very important, and I determined on an early occasion to endeavor to carry out a large number of experiments as to the effects of different morbid materials introduced under the skin of guinea-pigs and rabbits, in the same manner that M. Villemin had conducted his inquiry.

I found, at the time I was commencing my experiments, that a very short time previously, another distinguished Fellow of this College, Dr. Sanderson, had commenced a series of experiments with the same object. I did not know what the precise line of his investigation was, and the question appeared to be involved in so much obscurity and doubt—seeing especially that, with the exception of two cases of Dr. Andrew Clark, the prevailing opinion was that tubercle was inoculable and that nothing else was, an opinion which must modify the whole of our views of the pathological science of tubercle,—that I considered myself justified in continuing the line of independent inquiry which I had marked out.

It has proved that, within a few weeks of one another, perfectly independently, and without any knowledge of each other's results, Dr. Sanderson and I have arrived at precisely the same conclusions. He has found that inert matters introduced under the skin of the rodentia are followed by appearances in those animals which he considers tubercular, and which I consider tubercular; and I think that the results which I shall have the honor to lay before you will show you that my observations confirm Dr. Sanderson's views, which he has published at the Pathological Society a few weeks since.

The only other experiments made to any extent of late have been some on the introduction of matters into the circulation by Professor Lebert, to which I shall allude in a few moments. In the first place, however, I will dwell on the experiments which I have performed by inoculation. A summary of these is that I have inoculated 117 guinea-pigs and 12 rabbits, with various materials. Of these 117 guinea-pigs, 58 proved tubercular, 6 have been doubtful, and 53 have failed. In order to save your time, and to prevent a wearisome repetition of numbers, I have tabulated the results I have obtained.

I should explain to you what I mean by "doubtful." I consider any experiment doubtful which does not produce what I shall proceed to explain as tubercle in *three* of the internal organs, independently of the affection of the lymphatic glands in the neighborhood of the local injury; and as internal organs I reckon the lungs, bronchial glands, liver, spleen, peritoneum, intestines, and the mesenteric glands. Unless three or more of these are simultaneously affected, I have tabulated the result as doubtful; if none, as a failure. In the next columns I have stated the duration of life, and whether the animals were killed or died. I have placed in another column what I consider a very interesting point—viz., the number of times after inoculation in which there has been a local production, which I shall explain as granulations of tubercle. Unfortunately, my notes do not contain a statement of that in all cases.

I may state that I placed the animals under healthy hygienic conditions—in a large wooden shed, looking to the south, thickly protected with felt from the frost, provided with a window and a small opening leading into an open yard exposed to the sun, paved with brick, and on the slope. The house was divided into two parts one containing the animals that had been inoculated, and one for the others. They were well supplied with food, and the conditions were, I think, as healthy as possible.

The mode of inoculation adopted was one which I learned from my friend Dr. Sanderson: to take the smallest-sized trocar that can well be made, and fit it with a little piston longer than the trocar. Insert into the sharp end of the trocar a small piece of the material—and I have never introduced a piece larger than a canary-seed or hemp-seed,—introduce the trocar under the skin, and push the piston down till the material is delivered under the skin and safely retained there. When fluid is used, I have employed a hypodermic injection syringe with a rather large nozzle. The site of the injection has been almost invariably the nape of the neck.

I will now describe to you in detail the effects which have been produced by the introduction of any material under the skin; and I wish to explain that the effects now to be mentioned as having been obtained, either locally or in internal organs, apply to all cases in which I have succeeded in producing what I consider as tubercle whatever be the material employed.

To commence with the local effects. There are two which are rare. One of these is that a slough is produced in the neighborhood, which sometimes proves fatal. The other is local suppuration. Now, in the guinea-pig local suppuration to any extent is extremely rare,—I mean the formation of any large circumscribed abscess. There are formations of cheesy matter, dry, sometimes rather foul, cheesy matter, but never soft, puriform fluid. Under the microscope the material, so found usually corresponds to cheesy matter—viz., dried up débris of material, rather than true puriform cells.

The most common effect by far is the production of this cheesy matter under the skin. It is usually encapsuled, and sometimes there are two or three such masses. The capsule is firm and almost lardaceous in consistence, and passes insensibly into the surrounding tissue. But in addition to these cheesy changes, in a considerable number of cases, and extending for a varying distance round the seat of injury, there are seen a number of granulations: small, round, sometimes semitransparent, sometimes yellow and opaque, sometimes in conditions intermediate between the the two. Of this I have a somewhat imperfect specimen to lay before you; and I have a very excellent drawing by Mr. Tuson of the appearance on the skin of a rabbit. These granulations are often scattered around the capsule of the cheesy masses, and often extend to great distances beyond this, sometimes in lines and rows, sometimes in scattered circles. They often reach up to the neighboring lymphatics, and are grouped in masses of variable size around these. The single granulations vary also in size; some are as small as a poppy-seed; I have seen them as large as a hemp-seed, and those that were as large as a hemp-seed bore a strong resemblance to a minature lymphatic gland. These occur more especially in the neighborhood of the injury. In addition to these, cords of induration are very frequently seen, extending at variable depths and for variable distances through the tissues. The centre of these cords is often cheesy. Sometimes they form varicose dilatations, reaching up to the lymphatics; sometimes cords extend through the lymphatic glands into the surrounding tissue, whether from or to the gland it is difficult to say. The cords are not constant, nor are the granulations; but the frequency with which they occur is very considerable. The granulations have not been very largely noticed. I believe the reason has been that, to a great extent, they are seated deeply in the cellular tissue immediately under the hairy skin; and unless they are looked for very carefully, and all the superadjacent tissue removed, they may easily escape observation.

## RESULTS OF EXPERIMENTS,

| Material inoculated. | Number of Inoculations. | Tubercle produced. | Doubtful. | Failure. | Duration of Life: Tubercle. Days.† | | Duration of Life. Failure. Days.† | | Local production of Tubercles. | | | Number of Internal Organs affected. | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max. | Min. | Max. | Min. | Present. | N. statd. | Absent. | Average | Max. | Min. | |
| TUBERCLE ... ... ... ... | 8 | 6 | 0 | 2 | 92 | 6 | 8 | 2 | 4 | 2 | 2 | 5 1-6 | 6 | 5 | |
| PNEUMONIA, VARIOUS. | | | | | | | | | | | | | | | |
| Red pneum. in tub. patient | 1 | 1 | 0 | 0 | 43 | ... | ... | ... | 1 | ... | ... | 4 | ... | ... | |
| Grey infiltration ... ... | 2 | 2 | 0 | 0 | 84 | 63 | ... | ... | 2 | ... | ... | 5 1-2 | 7 | 4 | |
| "Scrofulous" ... ... ... | 4 | 4 | ... | ... | 95 | 35 | ... | ... | 4 | ... | ... | 7 3-4 | 8 | 5 | |
| Yellow cheesy ... ... ... | 2 | 2 | ... | ... | 36 | 28 | ... | ... | 2 | ... | ... | 7 | 9* | 5 | *Cornea and rib. |
| Chronic ... ... ... ... | 2 | 2 | ... | ... | 71 | 46 | ... | ... | 2 | ... | ... | 5 | 6 | 4 | |
| Acute sthenic ... ... ... | 2 | 0 | 0 | 2 | ... | ... | 15* | ... | 0 | ... | 2 | 2 | ... | ... | *Frost. |
| Total ... ... ... | 13 | 11 | ... | 2 | | | | | | | | | | | |
| SPUTA. | | | | | | | | | | | | | | | |
| Chronic bronchitis ... ... | 2 | 0 | 0 | 2 | ... | ... | 16 | 2 | 0 | ... | 2 | ... | ... | ... | |
| Acute pneumonia ... ... | 2 | 0 | 0 | 2 | ... | ... | 89 K | 88 K | 0 | ... | 2 | ... | ... | ... | |
| Phthisis ... ... ... ... | 2 | 1 | 0 | 1 | 26 | ... | 20 D | ... | 0 | 1 | 1 | 3 | ... | ... | |
| Total ... ... ... | 6 | 1 | 0 | 5 | | | | | | | | | | | |
| PUS. VARIOUS. | | | | | | | | | | | | | | | |
| Whitlow ... ... ... ... | 1 | 0 | 0 | 1 | ... | ... | 54 K | ... | 0 | ... | 1 | ... | ... | ... | |
| Abscess in abdom. muscles | 2 | 0 | 0 | 2 | ... | ... | 173 K | 49 K | 0 | ... | 2 | ... | ... | ... | |
| Healthy sacral abscess ... | 2 | 0 | 0 | 2 | ... | ... | 50 K | 17 K | 0 | ... | 2 | ... | ... | ... | |
| Foul pus ... ... ... ... | 5 | 3 | 0 | 2 | 183 K | 41 | 179 K | 6 D | 2 | ... | 3 | 6 2-3 | 7 | 5 | |
| Syphilitic bone... ... ... | 2 | 0 | 1 | 1 | 30 | ... | 57 K | ... | ... | 0 | 2 | ... | 1* | ... | *Spleen only. |
| Scrofulous bone ... ... | 2 | 1 | 0 | 1 | 117 K | ... | 172 K | ... | ... | ... | 2 | ... | 6* | ... | *Intestines. |
| Suppurative injury to knee | 1 | 1 | ... | ... | 36 | ... | ... | ... | 1 | ... | ... | ... | 4 | ... | |
| Suppurative bone ... ... | 1 | 1 | ... | ... | 60 | ... | ... | ... | 1 | ... | ... | ... | 5 | ... | |
| Lumbar abscess ... ... | 1 | 1 | ... | ... | 66 | ... | ... | ... | 1 | ... | ... | 6 | ... | ... | |
| Total ... ... ... | 17 | 7 | 1 | 9 | | | | | | | | | | | |
| ACUTE INFLAMMATION. | | | | | | | | | | | | | | | |
| Diphtheria ... ... ... | 3 | 0 | 0 | 3 | ... | ... | 4 K | 113 D | ... | ... | 3 | ... | ... | ... | |
| False membrane, pleurisy | 1 | 0 | 0 | 1 | ... | ... | ... | 112 K | ... | ... | 1 | ... | ... | ... | |
| Sloughs, wounds, operation | 3 | 1 | ... | 2 | 65 | ... | ... | 158 K | 0 | ... | 3 | ... | ... | 4 | |
| Pyæmic abscess, spleen ... | 2 | 2 | ... | ... | 88 | 80 | ... | ... | 2 | ... | ... | 5 | 7 | 3 | |
| Same spleen, unaffect. part | 2 | 1 | ... | 1* | 95 | ... | 19* | ... | 1 | ... | 1 | ... | 7 | ... | *Frost. |
| Total ... ... ... | 11 | 4 | 0 | 7 | | | | | | | | | | | |
| CHRONIC INFLAMMATIONS, &c. | | | | | | | | | | | | | | | |
| Gelatinous inflam. of knee | 2 | 2 | 0 | 0 | 136 K | 49 | ... | ... | 2 | ... | ... | 4 | 4 | ... | |
| Cirrhosis of liver ... ... | 2 | 0 | 1* | 1 | ... | ... | 100 K | 6 | 0 | ... | 2 | ... | 1* | ... | *Afew grains in l |
| Cirrhosis of kidney ... ... | 1 | 1 | ... | 0 | 41 | ... | ... | ... | 1 | ... | ... | ... | 7 | ... | |
| Indur. kidney, heart disease | 1* | ... | 1* | ... | ... | ... | 73 D | ... | 0 | ... | 1 | 0* | ... | ... | *Great emaciatio |
| Lardaceous liver ... ... | 3 | 3 | ... | ... | 109 | 80 | ... | ... | 3 | ... | ... | 6 2-3 | 7 | 4 | [dr |
| Total ... ... ... | 9 | 6 | 2 | 1 | | | | | | | | | | | |
| REINOCULATIONS. | | | | | | | | | | | | | | | |
| Tubercle from tubercle ... | 5 | 5 | 0 | 0 | 68 | 29 | ... | ... | 4 | 1 | ... | 4 4-5 | 6 | 4 | |
| Tubercle from low pneum. | 2 | 2 | 0 | 0 | 115 K | 75 | ... | ... | 2 | ... | ... | 6 1-2 | 7 | 6 | |
| Tubercle from pneum. (rab.) | 1 | 1 | 0 | 0 | 81 | ... | ... | ... | 1 | ... | ... | ... | 4 | ... | |
| Tubercle fr. tubercle (rab.) | 1 | 1 | 0 | 0 | 31 | ... | ... | ... | 0 | ... | 1 | ... | 4 | ... | |
| Tubercle fr. putrid muscle | 3 | 3 | ... | ... | 60 | 59 | ... | ... | 3 | ... | ... | 4 2-3 | 7 | 3 | |
| Total ... ... ... | 12 | 12 | 0 | 0 | ... | ... | ... | ... | 10 | 1 | 1 | | | | |
| DOUBTFUL TUBERCLE ... ... | 3 | 0 | 0 | 3 | ... | ... | 113 K | 61 K | 0 | ... | 3 | ... | ... | ... | |
| Various orgs. (rab.) inflamed | 4 | 0 | 0 | 4 | ... | ... | 100 K | ... | 0 | ... | 4 | ... | ... | ... | |
| Suppur. and lymph (rab.) ... | 8 | 1 | 1* | 6 | 119 K | 113 K | 57 K | 28 K | 0 | ... | 8 | 3 | 4 | 2* | *Onlybronchialg |
| VACCINATION ... ... ... | 4 | 4 | 0 | 0 | 66 K | 73 K | ... | ... | 1 | ... | 3 | 4 1-2 | 7 | 3 | [and sp |
| SYPHILIS ... ... ... ... | 6 | 0 | 1* | 5 | ... | ... | 71 K | 16 D | 0 | 0 | 6 | 0 | 0 | 1* | *Lungs doubtful. |
| COTTON THREAD ... ... ... | 3 | 1 | 0 | 2 | 14 D | ... | 73 K | ... | 0 | 0 | 3 | 4 | ... | ... | |
| SETON ... ... ... ... | 4 | 1 | 1* | 2 | 31 K | ... | 31 K | 20 K | 1 | 0 | 3 | 5 | ... | 1* | *Lungs. |
| TYPHOID ... ... ... | 2 | 0 | 0 | 2 | ... | ... | 80 K | 29 D | 0 | 0 | 2 | 0 | 0 | 0 | |
| CANCER.., ... ... ... | 2 | 0 | 0 | 2 | ... | ... | 14* | 6* | ... | ... | 2 | ... | ... | ... | *Frost. |
| PUTRID MUSCLE ... ... ... | 5 | 4 | 0 | 1* | 122 K | 84 K | 26 D | ... | 3 | 1 | 1 | 6 | 7 | 4 | *Very dropsical. |

† Where no letter is placed in these columns the animal has died. The letters K and D indicate respectively whether the animal was killed or died.

When these little granulations are examined under the microscope, they are found to present the following appearances :—In the centre they appear to present for the most part nothing but a mass of nuclei—or rather, I should say, in speaking my own conviction, of cells, embedded in a homogeneous tissue, of which the nuclei alone are visible; or it may be stated that they consist of nuclei embedded in a homogenous tissue. At the confines they consist of fusiform cells, some of which may be seen in various stages of division and of variable size; at the confines also round cells can be seen, and cells of a shape intermediate between the round and the fusiform. In addition to these, large cells are found, 1–800 in. in length and 1–1000 in. in breadth; the nuclei are very uniform in size—from 1–3200 in. to 1–5000 in. in diameter. These large cells are sometimes granular. They present a most striking resemblance to epithelium. Lebert has noted the same resemblance in the granulations produced under the skin.

There are also found in the centre of these masses extraordinary strings and rows of cells and nuclei; sometimes cells apparently, sometimes only nuclei, are visible. The nuclei resemble those before described. The cells, when discoverable, are of the type of the smaller round cells of the granulations. They are contained, apparently, within some limitary membrane. The size of the row is nearly twice the size of a capillary. They have no fibrous investment, like a vein—no muscular coat, like an artery. They suggest to me the idea of a lymphatic tube, swollen either by growth within its interior or by cells carried into it and obstructing its interior. My own conviction is, that it is a growth of cells proceeding from the elementary structure of the lymphatic itself. When I describe the omentum, I shall have to describe to you structures to which the granulations present, especially in their naked-eye characters, the most striking resemblance. The granulations under the skin are, however, denser; and I have not found them situated on the sheaths of vessels, as they are in the omentum.

The next change is in the lymphatic glands in the neighborhood, the axillary and subscapular. These are almost invariably enlarged to twice or three times their natural size. The change in the lymphatics sometimes extends to a considerable distance beyond, to the submaxillary and substernal glands, and to those situated down the trachea; their apparent number is much increased —that is to say, lymphatic glands of the size of a horse-bean, or even of a kidney-bean, are to be seen where none are visible naturally. On section these are semi-transparent, indurated, cartilaginous-looking, showing very little distinction between the cortical and the medullary substance. Through them are scattered lines and streaks of cheesy degeneration, which are sometimes agglomated into areas of the size of a pea. These sometimes soften into diffluent matter, which presents the same granular material and débris of cells which are found in the cheesy matter which softens in and around the wound.

The chief changes that can be observed by the microscope in the lymphatic glands are that there are large agglomerations of cells in groups in the cortical substance, apparently cramming up the loculi with structures precisely resembling the ordinary lymphatic cells, but much more densely packed, and these at places have undergone fatty degeneration. At other parts there are tracts which have undergone a fibroid change, where there is more fibrous tissue than natural. Amongst the fibres are cells also not distinguishable from the ordinary lymphatic cell; but both in these and in the parts where the cells are denser, very large cells may occasionally be found, from the 1–1000 to the 2–1000 of an inch in diameter, containing one or more nuclei, and often undergoing a pure molecular degeneration.

The next organs in which changes are most frequently found are the lungs. The chief which I have to describe consist in these organs being permeated more or less by small scattered granulations. These vary in size from a millet-seed to a hemp-seed. Some are very small, minute specks, scarcely visible. They are generally scattered, though sometimes confluent in groups. Sometimes larger groups are confluent, especially at the edges of the lobes; but even in these there is more or less evidence that they have been originally composed of distinct granulations. These granulations do not project very much on the cut surface, and they blend more or less intimately with the surrounding pulmonary tissue. They are all marked by a peculiar semitransparent, hyaline, cartilaginous-looking margin, and a cheesy centre; they are firm, and tear with difficulty from the pulmonary tissue. As a rule, the centre is only cheesy, and not diffluent, but in some marked instances, where they may reach the size of a small pea, there is a distinct softened centre. Lebert, in one of his observations, found them breaking down into cavities of considerable size. They are more common on the pleural surface than deep in the lung, but are distributed pretty equally, not occurring in one lobe much more frequently than in another. Sometimes, when there is a group of these granulations clustered together, an appearance is presented which is also occasionally seen in the human lung—a fibrous network running between the granules, as if the intervening tissue were becoming fibrous. In addition to this there is sometimes a sort of general induration of the lung-tissue. Signs of pneumonia and of general infiltration, independent of granules, are exceedingly rare. Once or twice I have seen them in the rabbit, never distinctly in the guinea-pig.

The microscopic examination of these growths in the lung presents a great many features of interest, over which I must pass somewhat hastily. In the first place, there are three main points where they are seen, one of which is around the bronchi, another is around the vessels, and another is in tissue where no particular connexion can be seen either with bronchi or vessels. Around the bronchi they seem to extend from little masses of a lymphatic character, which appear to me normally to exist in the bronchial sheath,—i. e., in the cellular tissue surrounding the bronchi, and which very abundant in the guinea-pig, and which are also stated by Kölliker to exist in the human lung. These granulations on the bronchus appear to consist of masses of cells growing in its sheath, 1–2500 to 1–3000 of an inch in diameter, mostly round, but sometimes, when densely packed, showing nothing but the nuclei.

These cells extend into the surrounding pulmonary tissue, and produce effects which I will dwell on subsequently. The other place in which they originate very commonly is in the perivascular canal. Here the growth appears to be nothing more than an accumulation of the cells lining the perivascular canal. Thence from the perivascular and peribronchial canal there is a very rapid extension into the surrounding walls of the pulmonary alveoli and smaller bronchi. A thickening of these is thus produced, and apparently by a double mode of growth—by a rapid growth of fusiform cells at the margins, clusters of which are seen passing among the capillaries, and by the increase of rounder cells which are found nearer the centre of the growth. Coincidently with this growth a change of great importance occurs in the capillaries. Their nuclei enlarge, and the vessels, otherwise unchanged, contain no more blood—that is to say, no injection will ever penetrate them, and yet their outline is still marked, even in the neighborhood of these tubercular growths, by lines of nuclei traversing the bases of the air vesicles. This obstruction of the capillaries takes place through large areas, through very much wider areas than the space occupied by the tubercle. So also with the thickening of the walls of the alveoli; around the grey granulations, and for three or four times its area, there is an area of thickening, affecting both the walls of the alveoli and the bronchi. This appearance is more distinct in the guinea-pig than in tubercle of the human lung; but it can sometimes be distinctly seen in the latter, and is a fact of great pathological importance, explaining the increased density and loss of elasticity of the lung occurring in the early stages of tuberculosis, which cannot be so satisfactorily accounted for by the mere presence of the grey granulations.

The bronchial glands are affected exactly like the axillary, and a description of one applies precisely to the other.

The next organ whose changes are very important is the liver. The liver is greatly increased in size, and considerably heavier than natural. It has two or three sets of changes, which, however, all belong, I think, to one type. The chief of these is the appearance of a tissue of a glistening semitransparent character, which occupies the substance of the liver to a variable extent. Sometimes it only occurs in little specks; sometimes in larger masses. Sometimes it runs in lines, mapping out the acini very distinctly; sometimes in irregular masses, in which there is no trace of liver structure left, but only a semitransparent tissue—generally, however, possessing a faintly granular appearance. In other places there are spots of a dead opaque white, sometimes surrounded by a zone of injection, which appear to result from fatty degeneration of the acini. The semitransparent portions look almost like parts of an albuminoid liver, and other places, where the acini are mapped out, look like parts of a cirrhotic liver. The resemblance in both cases is, however, only a superficial one. The organ is brittle, and wants the toughness of a cirrhotic liver. It breaks with a granular fracture, and does not stain with iodine like a lardaceous liver. Scattered through its semitransparent portions there are often seen dead opaque white spots of fatty degeneration, sometimes also little spots of cheesy change. These spots of cheesy change may extend through considerable areas, but they generally remain firm and hard. In some cases they form larger masses, of the size of a hazel-nut, with a diffluent creamy centre. When the semitransparent portions are examined with the microscope, the acini of the liver are seen to be widely separated from one another by a growth of granulations, originating in the capsule of Glisson, and tending to become confluent; and the tissue which is thus produced is a tissue of cells uniformly embedded in a fibrous network, in the meshes of which they lie. In size they correspond to the cells found in the new growths in other situations, the ordinary size being from 1–3600 in. to 1–3000 in., though some are as large as 1–2500 in. or 1–2000 in. In some places the cells run in strings or rows, forming elongated masses like those described as occurring in the granulations under the skin, and to which the same interpretation is probably applicable. The amount of tissue between the acini varies; sometimes these are occluded over a large space, or outlines only of the acini may remain, mapping out masses of the new formation; but sections under the microscope show that these granulations always tend to assume a globular form, and that from them the cells of new growth, which are strikingly different from the liver-cells, pass up in lines between a network of cells, of which the acini of the liver are composed. The liver-cells appear to atrophy by the progress of this growth, but they undergo no further changes; there is no multiplication of the nuclei, no special granular change, only a molecular fatty change taking place slowly around the margins of the new formation. The bile-ducts are unchanged, and the proper gland-tissue otherwise appears unaffected and healthy.

The spleen also enlarges very much—sometimes to two, three, or even four times its natural size. I have measured it two inches and a quarter long, one inch and a quarter broad, and half an inch thick. This organ also presents various appearances. A very common one is, that small whitish spots are scattered through the whole tissue: these appear to be about twice the size of the normal Malpighian bodies. Another consists of collections of these rounded bodies into masses which have a racemose appearance. Still other masses are seen, but more opaque, and having the same structure of aglomerated granules. The spots of a smaller size have generally a certain transparency, but less than in the liver or the lung. Sometimes large tracts of the spleen are converted into a semitransparent, glistening, brittle issue, precisely resembling that of the liver and the lymphatic glands. Various cheesy changes are also found. Occupying about the same area as the smaller granules, are scattered yellow, dry, firm spots, brittle, crumbling under pressure into a granular mass. Larger collections of cheesy substance may also occur, and cheesy spots of various size may be scattered through the transparent tissue. A rare appearance is where larger tracts become cheesy, and still maintain the dry, firm, and yet opaque character. Still more rarely, large portions of the spleen are found, like those of the liver, changed into masses the size of a hazel-nut (which is the largest I have seen) of a diffluent, softened, amorphous material. When this is the case, semitransparent granulations or cheesy granules are seen in other parts of the organ. The large cheesy masses are not very distinctly separated from the surrounding tissue, and are not surrounded by any zone of injection. They differ also considerably both in the character of the softened material and in the limitation from the surrounding tissue from anything known as pyæmic spots. Under the microscope most of the granulations seem to be composed of enlarged Malpighian bodies, undergoing various stages of fatty degeneration. The whole tissue is also infiltrated with cells precisely resembling the lymphatic cells of the spleen. Together with these appearances there are found, in by far the greater number, fibrous changes in the more transparent parts, analogous to those in the lymphatic glands.

We next come to the intestines. The changes in the small intestines, which are rare, are the following:—Peyer's patches are very large and prominent externally. The peritoneal surface is injected, sometimes thickened; and through it numerous opaque white spots can be seen. Internally, the patches are enlarged and prominent, and the mucous membrane around injected and opaque. Milky-white spots are seen scattered in the substance of the patches. Ulceration also occurs in specks in them. I have very seldom, I think I may say never, seen a whole Peyer's patch ulcerated. In the cæcum Peyer's patches are also much enlarged; but the single follicles of the patch are less visible than in the small intestine. Ulcerations of the whole or portion of the patch are not uncommon; and, where they occur, I have seen them with a cheesy floor, and numerous small granules in the floor. In fact, it may be said, I think, that, with the exception of the thickening of the margin, they possess all the characters of the tubercular as opposed to the typhoid ulcer. The solitary glands of the small intestine are occasionally enlarged. Sometimes, also, they are cheesy. Microscopic examination of Peyer's patches, where the opaque white follicles are seen, shows cells crowded just as in the lymphatic glands and spleen, and in many parts undergoing fatty degeneration. Once I have seen a bloody slough adhering to an ulcerated surface; and once punctiform extravasations in many parts of the intestine. With the last exception, I have seen no other sign of hæmorrhage. The ulcers always spring from Peyer's patches or the solitary glands, and not from other parts of the intestine. The stomach is always unaffected. The mesenteric glands leading from the intestine are almost invariably affected—more uniformly than the intestine itself. Large glands in the hilus of the liver are also very commonly affected. Their changes are similar to those of the axillary glands.

In the peritoneum dropsy is excedingly common. Lebert attributes it to obstruction of the circulation through the liver, I think with reason I have once seen hæmorrhage into the peritoneum; I could not find its source, but all the branches of the portal vein were loaded with blood.

The chief other change to which I wish to direct your attention is in the omentum. Here, scattered thickly through the tissue, are found granules, varying in size from a pin's-point to a poppy-seed, seldom much larger. They precisely resemble the grey granulations found in tuberculous peritonitis in man, except that I have only once seen any sign of inflammatory action attending the process. This was in a case of general tuberculosis in which abortion took place. Under the microscope, the granulations are found to be situated along the vessels, and they then originate in the perivascular sheath; but they also are found in tissue where no vessels whatever are to be seen, and here they appear to take their origin from small masses of nuclei agglomerated among the meshes of the omentum, which appear to be normal structures, but which serve as the starting-point of these tubercular growths. Thence the growth extends irregularly to the peritoneum. Whether they grow along the vessels or independently, the only change really discoverable is a dense agglomeration, most commonly of the nuclei, sometimes of the cells, in the meshes of the network of which the omentum is composed. With that exception, I have never been able to trace any distinctive characters which may separate the tubercle in the omentum from the healthy surrounding structure. I have never seen anything like an epithelium covering the omentum, as distinct from any nucleated tissue beneath. The only appearance we can see in the normal omentum is that of cells, of which the outlines may be indistinct and only nuclei visible, embedded in the meshes of a fibrillated tissue—a structure which strongly resembles what is commonly called "lymphatic tissue." The cells both in the normal and also in the tubercular omentum vary in size, the average being 1-2400 in. to 1-3200 in.

To present you shortly with a summary of the number of times in which these appearances have been found. Out of the 117 cases, three internal organs were affected simultaneously fifty-eight times; in 6, less than three. Out of these 64 cases, local granulations (stated in my notes) were present in 41. I have never found them where no internal organs were affected, except in one case in the rabbit. The local lymphatics have been affected in 54 out of the 64 cases; in one or two of the doubtful ones there was induration; in one or two enlargement and no other change. They have only been absent in 4 of the cases of general tuberculosis; and I should always question the accuracy of my own observations, whether I may not have overlooked one or two enlarged glands in these instances. The lungs have been affected in 59 out of these 64 cases—in all but 5. In 1 case it was absent when the spleen was affected; in 1 when spleen, intestines, and mesentery were affected. The bronchial glands escaped only eight times out of the 64 cases; only twice when there was any amount of lung-affection present. The spleen has been affected fifty-nine times, only escaping five times out of the whole group. The liver also was affected fifty-one times. Of the omentum my notes are not so perfect. It was affected twenty-five times; not stated in twelve cases. Affection of the intestine was present in 12 instances; not examined in 22. Mesenteric glands were affected forty-five times out of the 64 cases.

To contrast the results in the guinea-pig with 12 cases of rabbits; I inoculated 5 with pus without producing any general affection, but in nearly all these there was extensive local suppuration under the skin; 7 with tubercle, and in only 2 was any distinct effect produced, and even these were somewhat doubtful. I mention this to show that the affection of the guinea-pig is much more frequent than of the rabbit.

I must pass briefly over a point on which I should wish to dwell at length. It is the correspondence of these growths with what is ordinarily considered as tubercle; and in discussing this, I will take as a type that concerning which there is the most general agreement—namely, the grey granulation. There are two or three leading points, however, which I should wish to lay before you with considerable emphasis. One of these includes the mode of distribution, the multiplicity of the affection, the organs affected, and the parts of the organs affected,—which strikingly correspond with the chosen seats of tuberculous affections in man. There is one exception in the guinea-pig—namely, the absence of meningeal affection; but I do not think that this can weigh very materially against the cumulative force of the argument derived from the other viscera, and I think that the non-implication of the meningeal arteries may depend on some minute points of anatomical difference with which we are not yet familar. I would also point out to you that in all these places the main character of the affection has been that of a growth of lymphatic character, and probably having its starting-point in structures of this nature. Now I think that if there is one definition of tubercle which we can hold by more strongly than another it is that of Virchow, that tubercle is a growth resembling lymphatic structure; that is to say, it consists of round cells, of many of which only the nuclei may be visible, and these are embedded in a network either of fibre, or of transparent but semicartilaginous homogeneous tissue, where, however, distinct fibrillation may be absent. Another point is, that these growths are agglomerated into little masses, like the acini of lymphatic glands, the Malpighian bodies of the spleen, the solitary glands of the intestine; that wherever they occur they tend to assume the form of more or less distinct granules, but that they also blend insensibly with the surrounding tissue; that they extend in connective tissue by a change in the growth of this tissue, through which cells are produced resembling those rather of a lymphatic structure than those of the connective tissue itself; that they have no specific character (in this like those of tubercle); that they pass into an early decay, which is not sloughing, but molecular death; and that this appears to be caused partly by their mutual pressure and the density of the growth, partly by the occlusion of vessels. I think we know of no other growth, except tubercle, which occludes vessels to the extent which these growths do.

My time is too short to allow me to discuss with any minuteness the question of the identity of the morphological characters of these structures in the lung with those of tubercle. One fact, I think, may be stated with the broadest distinction here, that we are not dealing with any "lobular pneumonias," any "catarrhal pneumonias" or with any infiltration of the alveoli (which are the very last things that are occluded). It is an external thickening from the wall, which finally closes the air-vesicles. Even in the densest masses, examined with a binocular, a certain transparency can still be seen, distinctly in some places, showing that central portions of the alveoli are still hollow. There is very little participation of epithelium in the growth. The epithelium seems, if I may say so, to disappear in the progress of tubercle, and to give place to cells of another and different character. I think we have been dealing with the question of epithelium in the lung in too specific a sense, and that it is really only a derivative of the connective tissue, like the cells I have spoken of in the omentum, more akin to connective tissue than to the covering which we ordinarily call epithelium on a mucous surface; the difference being that they do not rest on any subjacent nucleated tissue, but are in fact both the superficial and also the sole representatives (with the exception of a few fusiform nuclei) of cell forms in the delicate membrane of which the wall of the alveoli is composed. They appear to be embedded in a fibrous network. At times they desquamate under certain morbid processes; at other times the structure no longer produces epithelium cells, but cells which are the direct derivatives of connective tissue. The latter do not, as a rule, form a large proportion of the grey granulation in the lung. It passes away, or at any rate is not produced in the process. There is no infiltration in these cases; the alveoli do not fill, and therefore we cannot be dealing with anything like pneumonia, and certainly not with anything like pyæmia.

It appears also in the lung that the point of departure is in no respect from the vascular apparatus. Nor is this implicated in the same manner as it is in most inflammatory processes. The point of departure here, even when it is connected with the vessels, is in a tissue external to the vessel; and the occlusion of the circulation, when it occurs near the growth, is either through pressure, or by the implication of the wall of the capillaries in the growth; and the occlusion passes backward from the capillaries.

I think there can be very little question that the affection in the lymphatic glands is one so closely akin to the tubercular change that I need not dwell upon it further. The organ which might excite most doubt is the liver, because in man tubercular growths seldom proceed to the same extent as these in the guinea-pig. But really, in its essential characters, the growth appears to me to be identical with that of tubercle in the human liver occurs between the acini, and does not invade the acini except occasionally passing between the rows of cells. The liver-cells in the tubercular liver are unchanged, but between the acini there is produced the same agglomeration of small cells, much smaller than the liver-cells, arranged in globular masses between the acini, but nowhere proceeding from any change in the liver-cell itself. Again, I think I may say that we know of no other disease except tubercle, to which that description can apply. The only one resembling it is the leucocythæmic changes; to these I will allude in a few moments.

As regards, again, the omentum, anyone who will for one moment compare one of these growths with specimens from the human omentum, or from that of the monkey, I think can have little question as to their perfect histological identity with these. They are in both cases perivascular and extravascular; both occur without any character of inflammatory change; they both equally pass gradually into cheesy change.

In conclusion, I think I may say that anyone who doubts whether these growths are tubercular is bound to show that a hitherto unknown disease exists affecting the rodentia, excited by special agencies, occurring in all the organs in the chosen seats of tubercle in man, occurring with equal frequency in them and in the same *parts* of these organs as in man, growing with the same general features of histological character, and having the same vital characters and the same early degenerative cheesy change—not suppuration nor ordinary acute softening,—and yet that this disease is no-tubercular. The only disease which possesses the least affinity with it is leucocythæmia; but leucocythæmic growths have not the same tendency to degenerative changes, and they are, as an almost invariable rule, attended with an increase of the white corpuscles of the blood, which these growths are not. Tubercle also is similarly unattended—though it might be expected that it would be, from the implication of the lymphatic apparatus. I do not think that the disease can be considered as farcy, though the local changes may have some resemblance to farcy changes, for every subsequent change of farcy is one of a suppurative kind in internal organs. I do not think that after the specimens I have had the honor to submit to you, I need dwell on the fact that they cannot be included under the name of pyæmia.

The great difficulty which occurs, in the present day, in identifying any disease with tubercle, consists rather, I think, in our defective definitions of tubercle. I think—if I may pass such a criticism without presumption—that some modern pathologists are rather disposed too strictly to limit the application of the word tubercle. I think even that Virchow's careful observation, to which we owe so much—that all cheesy matter is not tubercle,—has been pushed in the present day to a very dangerous extreme, and that some pathologists are disposed to doubt the tubercular character of any cheesy matter; whereas tubercle is the most frequent cause of any cheesy matter which is found. And indeed, in some respects, the limitations of tubercle have proceeded so far, that I think if what every pathologist excludes from the category of tubercle, were admitted to be rightly excluded, tubercle would—not, unfortunately, cease to exist, but would certainly no longer have any local standing in our nosologies. Nearly every form of pathological product, from the grey granulation to the cheesy infiltration, is by some authority or other excluded from the category of tubercle. I do not say that I for one moment think that no limitations to the class of tubercle are desirable; but I think that we are at present in danger of going to an extreme excess. I think that in many respects—though I hope I shall not be accused of undervaluing the microscope—our naked-eye criteria are becoming almost if not quite as valuable as the minuter microscopic distinctions which have of late been set up. My impression is that tubercle is a product which undergoes transformation in various directions; but that, though it varies somewhat, especially in the lung, according to the rapidity of its growth, and the more or less implication of epithelium in its growth, and though it may at one stage of its growth present appearances very different from those at another stage, yet these are not the less tubercle.

There is, however, another point to which I desire especially to direct your attention in relation to the question of the identity of the disease in the guinea-pig and in man. This question appears to me to rest on a broader basis of analogy than that of the correspondence in every line and shade of description between the statements of individual observers as regards either the histological characters of these growths in the rodentia of those of tubercle in man. Looking at the general history of histological research, I cannot for a moment flatter myself that I have by any means exhausted all the points in the minute anatomy of these new formations. These general features have, however, a considerable similarity both in individual organs and also with those of tubercle in the same organs in man.

What however I wish especially to insist on is the general or constitutional character of the affection, coupled with this general analogy to tubercle, which I think almost absolutely proves the indentity of the two diseases. It is not a question as to absolute correspondence in their minutest details of statements made by different pathologists as to the characters of tubercle in different organs. It is not a question of a resemblance in the lung *alone*, or in the liver *alone*, or in the spleen, or in the intestines, or lymphatic glands, or serous membranes, taken singly, with the characters of tubercle in man. It is a question of a constitutional affection, simultaneously implicating a greater or smaller number of these organs in the same situations, and in a manner so similar to the affection produced by tubercle in man, that in the majority of specimens, if they occurred in the human subject in the same manner, there would, I think, be no doubt as to their tubercular nature. And therefore I think that, considering the indentity of these growths with all the most important features of tubercle, we cannot but admit the tubercular nature of the disease thus artificially produced.

Another point which requires attention in relation to the history of these cases is the theory of the mode of production of these growths. It is not my wish to propose a new theory on the subject. The question has received so many theories already that it would require a considerable exercise of mental ingenuity to found a new one. But several things follow with very marked distinctness, if it be admitted that these are tubercle. In the first place, M. Villemin's position cannot, I think, be held true—that tubercle is a specific disease, producible by itself alone. The list which I have placed before you here will show you that, of these successful inoculations, many have been produced by other things than tubercle. For instance, the four guinea-pigs, under whose skin a thread was placed saturated with vaccine lymph, all four have presented the same characters, and offered as striking instances of the disease as any of the cases produced by true tubercle; and the same similarity was observed in four of the five cases inoculated with a little bit of putrid muscle from the dissecting-room. My friend Dr. Sanderson's experiments with a seton (which I have also repeated during the last month, but out of four only one succeeded) show very plainly that a local irritant is capable, under certain circumstances, of producing tubercle; but then it would appear that we also want irritation of a certain kind, or that a certain action must be set up before the effect is produced. But I think that one point also comes out from the number of times in which the local affection is produced—that a local irritant is capable of producing local tubercle.* If the question of these granulations be doubted, still the question of the implication of neighboring lymphatic glands stands in very near relation to the implication of a lymphatic gland near an organ that is tuberculous.

I do not think that these phenomena can be classed among those that go by the name of embolism. The obstruction does not appear to originate within the vessels, the occlusion of which is only a secondary feature in the process. The disease appears to originate from something introduced into the circulation, which is capable of setting up, chiefly in the lymphatic system, a growth—not distinctly inflammatory in my opinion, but which we may term irritative,—which passes rapidly into decay. On that point, also, I should be sorry to dogmatise, in the face of a new field of inquiry, so vast as it appears to me, open to anyone who seriously wishes to look at the whole subject. The mode of producing tubercle is a problem which, up to the time of M. Villemin's researches, had never been solved. I think it is not beyond the ground of a real and true scientific induction to conclude that with tubercle, as with many other diseases, when its mode of production and evolution can be fairly elucidated, there may be some hope, at any rate of prevention, if not of cure.

I think that, in some respects, as has been already pointed out, the effects of these materials introduced into the system have their analogy, in certain instances, in those of materials already existing in the system. This is of very considerable importance, and explains what Professor Niemeyer had already stated before this was known, that he believed in many cases tubercle of the lung was secondary to pneumonia, and that subsequent deposits of tubercle in other parts of the body were again secondary to the tubercle developed in the lung. It points out, too, what has long been known to surgeons, but as far as I am aware, was first distinctly stated by Mr. Holmes at the Children's Hospital, how the removal of diseased bone positively prevents the evolution of tubercle in predisposed subjects, and that it is a desirable preventive measure in such cases. If morbid matters, not tubercular get into the system in certain states, which we are not able at present to define (from the fact that these materials differ so widely that it is at present impossible to say why some produce this effect and some do not), they appear to be capable in certain instances of producing tubercle. It would thus appear that the action is of a septic character; but the phenomena thus produced must certainly be distinguished from pyæmia, with the products of which they have not the least analogy.

Another element also enters into our consideration of these cases, and that is the question of predisposition. The difference is certainly very great between these lower animals and man; but, in final conclusion, and in explanation of my experiments, I may say that I do not consider guinea-pigs or rabbits naturally prone to tubercle, except under special conditions. Nor am I acquainted with any zoologist or comparative anatomist—and I have asked the question in many places—who has seen these animals tubercular, except under some conditions of local irritation. I myself took without selection from the other side of the house in which they were living six guinea-pigs, and killed them, and there was not a trace of one of the changes which appeared in the others; and I think that the number of failures supports the same fact. I think also that the success of certain special morbid products tends to show that some things have an effect greater than others. Tubercle certainly is more effective than others, for we have never failed with tubercle properly so called, nor with tubercular pneumonia—using the word generally to signify all the low pneumonias about the nature of which any discussion exists.

But I do not think that the experiments can be used as a test of what is tubercle and what is not. In fact, the experiments themselves, as detailed here, I think most positively prove that; for identical effects have been produced with widely dissimilar substances. I think that some special predisposition is needed, and I am inclined to believe that this will be found in the anatomical or physiological condition of the lymphatic system. Lymphatic structures certainly abound in the lung and omentum of the guinea-pig—probably more than in man; but positive proof of this kind is very difficult of attainment.

# Clinical Lectures

ON

# DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir Henry Thompson,

**Surgeon-Extraordinary to H. M. the King of the Belgians Professor of Clinical Surgery, and Surgeon to University College Hospital.**

## LECTURE VIII.

### LITHOTRITY.

Gentlemen,—I shall place on our lecture table two patients with stone in the bladder, one of sixty-two, the other of sixty-five years of age. One man has a stone about an inch in diameter; the other has two stones, each about three-quarters of an inch in diameter; and in both the composition is uric acid.

Now, if a patient has never had any instrument passed into the bladder before, and if the urethra is not capricious, it is desirable to pass a bougie two or three times before commencing. In the present cases the urethra is not very sensitive; it is large in size, and there is no occasion to do this. Next, it is desirable that the patient should not be below his ordinary standard of health. You will not begin to operate when there is an attack of fever, nor unless the digestion is in fair order and the bowels are acting tolerably well. Take care that you have the local organs, and the whole system, in as favorable a state as possible at the outset.

Having decided to crush, there arises the question of instruments. Now I shall simply show you the kind of instrument which I have used, and also, to a certain extent, what has been used in the past. Lithotrity as an operation owes its existence to the French surgeons, mainly to Civiale, but not forgetting Leroy d'Etiolles and others. My old friend, Civiale, who died last year, was the first surgeon to crush a stone successfully; that was in the year 1822. It had been done occasionally by patients themselves. In one case a man had managed to grind down with a rough file a little stone in the bladder, and that has been called lithotrity. But the first man who systematically performed the operation on the living patient was Civiale, and he operated on his first two patients, before the Academy of Medicine, with this instrument that I hold in my hand. You see how different it is from anything we now employ. It is a straight instrument, with a central axis and three claws, which were made to project after its introduction into the bladder. [The manner of using it shown.] You see what a very different mode of proceeding that is from the method now adopted. Yet that was to a certain extent a successful operation. I cannot now carry you through all the stages by which the various improvements originated, but the next great change was the curved instrument. It is the present form, but this old pattern still holds its ground, I regret to say, here. It has long been exploded elsewhere although still used in London. It is the instrument with which Sir B. Brodie earned his success, and is used thus. [Explanation.] You see how long a time a time it takes, and how much movement is necessary with it in the bladder. You cannot do any respectable amount of crushing in less than five minutes in this way. A great improvement upon that instrument was made by Civiale and Charrière, of Paris. The object was to avoid the loss of time and the jar occasioned by screwing and unscrewing, the sliding movement being instantaneously changed into a screw movement, and *vice versâ*, by the turning of a disc in the handle. [Instrument and method exhibited.] Meantime Sir Wm. Fergusson devised and adopted the rack-and-pinion method, which is an improvement on the old instruments before described. Lastly, I show you a lithotrite, due in part to my own design, and in part to Messrs. Weiss, which is now so widely used that I must notice it also, especially as it is that which you always see me use here. In what respect does it differ from others? In this, that it enables you to operate in less time, and with less movement or shock to the bladder, than any other instrument; and time, you know is a matter of importance. It makes a good deal of difference to a patient whether you retain in his bladder an instrument for three minutes or for one minute. If you pass a bougie into your own bladder at once and withdraw it you may experience very little discomfort; but leave it there for three or four minutes, and see how you like it. Every half minute after the first, the pain increases. The mere sojourn of the instrument in the bladder is a source of irritation precisely corresponding to the time it continues there. Anything, therefore, that will diminish the time of the operation and the amount of movement and concussion will necessarily give you a greater prospect of success.

Now for the proceeding itself. There is no operation that I know which demands attention to so many minute details, all of them being very important. For its successful performance it is essential that the surgeon should not only attend to the operation pure and simple, but to all the details connected with the case. Lithotrity neglected had better not be done at all. Either let it be done according to certain principles, and with great attention to detail, or let lithotomy be performed instead. One naturally recoils from many details; it is therefore essential to find out what principles regulate them. And, happily these are very simple. What is the problem to be solved? It is to remove a stone from the patient's bladder without inflicting a wound, however small, either in employing the instruments or in removing the fragments. That is what we have to aim at.

Now, I need not say that by any cutting operation that is impossible. There is at the outset a severe injury to the patient in the shape of a large and deep wound, and it is this which, in any form, is always a risk. Let us see how far we can hope to solve the problem by lithotrity. All the chances of injury possible arise from these two sources: the stone itself, and the instruments used to extract it.

First, the stone. In its natural condition, as we know, it occasions no dangerous injury to the bladder, although it causes much pain, and ultimately chronic disease. But when it is broken up into large angular fragments with sharp edges, it becomes a source of injury, and severe cystitis may be thus readily induced. These should be pulverised one at a time; you do not attack them all at once, and break them up indiscriminately into sharp pieces. Then you will take care that this débris is not hurried away when first made and while it is sharp; if it can remain in the bladder two or three days before it passes, it will become somewhat waterworn, and will pass more easily; at the same time the urethra will be less sore, and in better condition for its transit. It is as well also sometimes to promote the flow of urine by giving diluents and diuretics. Secondly the instrument used, and the method of manipulating it, may be productive of much injury both to the bladder and to the urethra. It has therefore been an object with me to lessen as much as possible the number of instruments employed, the amount of manipulation applied to them, and the time devoted to the process. I have shown you how, in conformity with this principle, I have endeavored to produce an instrument which should give the least possible irritation. And I will only add that if we can get an instrument which will do its work with less disturbance still, it will be *pro tanto*, a valuable step in advance.

Now as to diminishing the number of instruments used. Formerly it was laid down as an axiom that you should never use a lithotrite in a patient's bladder unless it contained a known quantity of urine or other fluid. Hence the urine was always withdrawn before introducing the lithotrite, and four or five ounces of water were injected. I have shown that these preliminary injections are wholly unnecessary, and I never use them—never even ask a patient to hold his water beforehand, nor when he micturated last. I am perfectly indifferent, whether he has one ounce or four ounces of water in his bladder, objecting only to a large quantity. If there is a small stone, with a large quantity of water, you may hunt long before you find it—a proceeding which will give much more pain and uneasiness than if a small quantity of water only were present. It is said, "If there is only a small quantity of water, how can you be sure that you will not injure the coats of the bladder in endeavoring to seize the stone?" There is no difficulty in that respect, because these instruments are so constructed that you could scarcely lay hold of the bladder with them if you tried to do so.

When you had instruments in which the blades closed upon each other accurately it was different. But these blades never do so: hence the safety of the instrument.

Then there is another species of mechanical irritation which may be met with. It was common, and it is now with some surgeons to withdraw large fragments of stone from the bladder through the urethra. The surgeon would lay hold of them with the forceps, or with some other contrivance, and would really seem to think he accomplished something to be proud of if he drew from the bladder a calculus as large as a bean. Now in order to draw out such a calculus you must first catch it. Well, if you have once caught it, why not give one turn of the screw and reduce it to powder? Why subject the neck of the bladder and the urethra to pain and injury by dragging through a distance of six or seven inches a sharp angular fragment of stone? So far from looking upon it as an achievement in surgery, I look upon it as a thing especially to be avoided. Never, then, on any pretence, withdraw an instrument containing a fragment or dèbris too large to pass easily through the urethra. Our object is mainly to crush the stone into small broken material, which will then pass harmlessly and easily enough. Again, it was the custom after crushing to inject repeatedly and forcibly several ounces of water into the bladder, the patient being placed upright in order to remove the fragments just made. Now this is an irritating process, more so often than the use of the lithotrite, and for the reason just named I regard it as a useless and meddlesome proceeding. You see then that we get rid of the preliminary injections, the after injections and also the withdrawing of the fragments. As a rule, everything is to be done with the lithotrite. One good flat-bladed lithotrite will do seven-eights of all the work. Other means, Clover's apparatus for example, which is the best of all, should be employed in exceptional cases.

Having enumerated what I believe to be the simple principles of lithotrity, I now come to the practice. Usually when you have a large stone to deal with, you begin with the fenestrated instrument—that is, one in which the female blade is entirely perforated, allowing the male to pass through it. This is always a more or less dangerous instrument; hence it is used as little as possible. I never use it unless the stone is actually so large that it cannot be crushed by the flat-bladed instrument. The edges of the instrument exactly meet, and are sharp, and the fragments made by it are always rough and irritating. Always when it is possible I use the lithotrite with flat blades—blades which reduce the stone to powder. The blades do not meet each other, and cannot catch or hurt the bladder, and the movement altogether is easier than of the other instrument. [A patient is placed on the table.] I have told you that there is a difference in the mode of introducing the lithotrite and the catheter. You know that in passing a catheter, we, in this country, stand on the left side of the patient; in France the surgeon stands on the right side. In passing the catheter for a recumbent patient you hold it somewhat horizontally; draw the penis gently over it, and give a gentle sweep, in this way, into the bladder. In passing the lithotrite a different movement is required. You may stand on either side, but it is better to be on the right side, because that is the convenient side for operating, and it is awkward to go round the patient to operate after passing the lithotrite. Well then, standing at his right side, and partly turning your back to him, you let the lithotrite slowly and easily find its way until the shaft reaches nearly the vertical direction. Arrived at this point you retain it in that position for a few seconds, allowing it to go in that position by its own weight, in order that it may slip under the pubic arch. This done, you gently depress the handle, and it slides readily into the bladder. There is no more easy instrument to pass than the lithotrite with ordinary management. I have now introduced the lithotrite, and have to find the stone and seize it. In order to do this I simply open the blades and close; the stone is between them. I touch the little button here, which changes the sliding movement into a screwing one, turn the handle and crush. I then disengage the button, again open and close, and now I have a large fragment between them, and, repeating the action, again crush. A good quantity of dèbris results; less than a minute has been occupied, and I withdraw the lithotrite slowly and gently, and here is the dèbris, which you see is uric acid, between the blades. There is no trace of blood, and the patient has made no complaint of pain. If you ask him he will, I dare say, tell you it was not agreeable; but it is nothing to take chloroform for—nothing like extracting a tooth, for example. Now we will have another patient [who is placed on the table, the other walking away]; he has had two sittings before, and knows all about it. I introduce the instrument in the same way as before. I open and close the blades, and find nothing. Turning them to the right, I feel nothing; turning to the left, I feel nothing. I then depress the shaft, and turn the instrument over, so that the blades are reversed and point downwards; I open and close, and seize a small fragment deep behind the prostate. Having crushed that piece, I open and close in the same position, and find one a little larger, and having crushed it I withdraw the instrument. This is always rather more painful for the patient than when the stone is found in the usual situation, and it occupies more time, perhaps two minutes instead of one. It is not usual to have a case of so much difficulty as that.

Now let me give you a hint about crushing, which is a very useful one. Whenever you have found a stone, or a good-sized fragment, and have crushed it, keep the lithotrite exactly in that place, and although you may have had some trouble in finding it, you will now continue to find it several times running. It reminds me of fishing for perch; when you have caught one, you may catch, perhaps, twenty or thirty more out of the same hole, if you will but stop there, and not go fishing about among the shallows. It is the same in lithotrity. You will go on seizing and crushing if you contrive to keep the lithotrite precisely in the same place. In fact, there is what may be called a certain favorite "area" in every bladder in which to operate—a certain spot which is a favorite haunt, so to speak, for fragments of stone. If you find that out in each bladder you will always be able to crush; if you do not, you may often have some difficulty in discovering your stone. The area will, of course, vary somewhat with the position of the patient. If the patient was standing, for instance, the area would not be the same as in a lying posture. It is best to raise the pelvis two or three inches; then you get an area for operating which is not too close to the neck of the bladder. The neck of the bladder is a very sensitive part, and you should always avoid it, because in pulling out the male blade you may impinge againse the neck of the bladder if you are not careful. One of your maxims in lithotrity should be never to pull out forcibly the male blade. You should pull it out carefully and delicately so as to *feel* the neck, and it is a bad lithotrite remember, if the male blade does not slide with perfect ease.

Now suppose that we have—at five, or six, or eight sittings, according to the size of the stone—almost if not quite removed it, a very important duty remains. It has been objected to lithotrity—and there was some truth, perhaps, in the allegation formerly, but not now, if the operation is done well—that you never made sure of getting rid of the last fragment; that you might leave a portion to become the nucleus of a future stone. But there is very little more difficulty in getting away the last fragment than any other, provided you go the right way to work. Generally speaking, in four cases out of five, the last fragment passes as the others—that is, by the patient's natural efforts. But supposing there remains a bit too big to pass—suppose you have reason to believe this from the continuance of the pain, &c.,—you then take an instrument with short, wide, rounded blades, with which you can explore easily in the reversed position. With such an one you may thus search the whole floor of the bladder with perfect safety. Now supposing you have done this and have found a bit of stone, and do not know whether there is another—some little symptoms are left, but you do not find any more, —what is to be done? You do not know whether these symptoms are due to a fragment of stone which escapes you, or whether to the irritation arising from the long residence of the stone in the bladder, and also, to a certain extent, to your instrumental efforts to find it. This is what I advise: wait for a week and see whether the patient is better, and, if there is any doubt at all about it, make him take some severe exercise. I do not know anything here in London better than a long omnibus drive. Tell him to expend a shilling in omnibuses—say, between Mile-end and Kensington,—and if that does not find out the fragment in the man's bladder I scarcely know what will. If he can stand that, especially if the roads are mending—if he is not worse for such a journey,—rely upon it he has not any fragment left: the irritation is due to the state of the bladder, and not to a fragment. If the latter exists, the patient will to a certainty be the worse for his drive, and, perhaps, there may be some bleeding. I admit that it is difficult to tell sometimes what the irritation is due to; and it is only by waiting and testing in some such way that you can find out.

Then there is another very good mode of getting rid of the last fragment, and also of removing fragments at any time when they are not well expelled by the natural efforts. I mean the apparatus of Mr. Clover, who, well known by his chloroform instrument, has also given us a valuable addition to the instruments for lithotrity. It is a very fascinating apparatus, and looks so well that there is some risk of its being used when not required. There are certain conditions in which the fragments never come away well. For example, a patient has no power of making water, except by a catheter; then few fragments, probably, will be passed in that way, and you will require other means. For him the apparatus in question is the very thing. After crushing, this large catheter is introduced, and the fragments are sucked out by the action of this powerful india-rubber bottle which is attached to it. The process is rather trying, however, for the bladder; and it costs rather more pain and time than an ordinary sitting for lithotrity.

One trobleesome thing that very rarely happens is the impaction of a fragment. If you adopt the system of lithotrity which I have shown you it is remarkable how seldom that happens. I have never had to open the urethra to remove a fragment in my life. I have occasionally had to remove one by the forceps but that is very rare; and among all the complicated inventions for the purpose, I know nothing so good as the common long forceps which I show you here. During the last year, certainly, I have not even had occasion to use them. The more thoroughly you crush the stone, the less use there will be for forceps. Here is a bottle containing what I call a well-broken stone. You see it is almost powder: a very different sort of thing from that in the other bottle, where you see a large number of big fragments that were probably passed with difficulty. It is an old saying, "a carpenter may be known by his chips:" certainly the skill of the lithotritist may be known by the débris he makes.

In my next lecture I shall take the subject of lithotomy, and give you a general sketch of the different modes which have been practised, and which are being used at the present day.

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## LECTURE IX.

### LITHOTOMY.

Gentlemen,—The proceeding of "cutting for the stone" is always a subject of extreme interest; indeed, you will find no operation that has exercised a greater fascination for the veteran operator, while there is none which more excites the ambition of young surgeons. There is none respecting which an old student comes to his teacher here with so much just pride and happy sense of newly acquired power, as when he tells him, "I have just cut successfully my first stone case down in the country." On the other hand, the true surgeon who loves his art is always at home when the theme of discussion embraces the history and practice of lithotomy; and I verily believe that some acquaintance with the former is one of the best ways of commencing a study of the latter. I will therefore give you a sketch, although it must be very slight and meagre, of the different stages by which lithotomy has arrived through early periods at its present condition.

The first record we have of lithotomy is in the Augustan age. I shall speak first of lithotomy under the classic period then under the mediæval period, and then under our own period—the period in which, without regard to what has gone before, and with the utmost indifference to anthority or antiquity, we sift anew everything to the bottom, in what we call "the spirit of the nineteenth century." I dare say there was an earlier period still, even before the time of Celsus the author of the first account (who, by the way, was a physician, and never operated); and if some enterprising Lyell in surgery would make the inquiry, he might find traces of a pre-historic period; because wherever there are human remains calculi must exist. I do not know that uric-acid stones would endure long. We know that the excreta of fishes are preserved for thousands and thousands of years, and I doubt not that some of these human excreta might be found also, and that oxalate-of-lime calculi, at least, must exist among other human remains. We will, however, not occupy our time with speculation, but will be satisfied to begin with such facts as we can find, say about 2500 years ago. More than 2000 years have passed since Celsus wrote, and hence I have named that date, as the operation was evidently an established practice at that time. Hippocrates speaks of it, although he made his pupils take an oath that they would never practise lithotomy. For then lithotomy was an occupation by itself, and not a very exalted one in popular estimation, being only practised by certain itinerant performers. What they did was described by Celsus in his seventh book, and it was called "cutting on the gripe." The method was simple and so were the instruments; on which account they were afterwards termed the "apparatus minor," to distinguish them from the "apparatus major" which came into vogue in the mediæval period. The operator commenced by placing his patient, usually a boy, upon the knees of a man who was seated. The operator used no staff whatever, but inserted two or three fingers into the rectum, and endeavored so to feel the stone, which he could only do if it was large. If he succeeded in this, he fixed it firmly, or "griped" it with the ends of his fingers—hence the term "cutting on the gripe;" and, pressing it down towards the perineum, he made a semilunar cut with a broad scalpel until he reached it. Then if unable to press it out with his fingers, he drew it out with a hook. Now this rough-and-ready mode was extant until about the sixteenth century; indeed, up to the seventeenth century it was largely practised in Europe.

We now come to the Mediæval period, when at least three different operations appeared. Appropriately enough, too, a monk figures now as the most famous operator.

First, we will consider the "Marian method," or "apparatus major"—a median operation, originated by Johannes de Romanis, but receiving its name from his pupil Marianus Sanctus. It is called the "apparatus major" because, while "cutting on the gripe" required only a knife and a hook, this table would be scarcely large enough for the instruments employed for the Marian operation. They are not here, but you may see them at the College of Surgeons. By this method a vertical incision was made by the side of the raphé, and the urethra was opened on a staff at about the membranous portion. A dilator was then thrust into the wound, and another upon that (male and female dilators they were called), and the canal and the neck of the bladder were torn asunder with great rudeness. It was a very unsuccessful operation, and was gradually lost sight of in consequence. Still it held its ground in places, and for certain cases, as late as to a part of the eighteenth century.

Next I shall name the high or suprapubic operation, which appeared about the end of the sixteenth century, and this has maintained a position of greater or less importance to the present day. More than this I shall not say on the present occasion, as we concern ourselves mainly with perineal lithotomy.

I now come to a new proceeding, which rudely shadowed forth our present lateral operation. It was performed on a staff, which was not grooved as now, but yet it roughly served as a guide into the bladder. The operator commenced by thrusting a long knife into the ischio-rectal fossa, and so on into the bladder behind the prostate, and, cutting forward, he made the entire wound at one incision. Invented, as it was believed, by Pierre Franco (16th century), its apostle and promulgator was the celebrated Frère Jacques, who flourished in the 17th century, and is said to have cut 5000 times for stone. Probably he did not cut 500; but a cypher more or less was a trifle for the inexact and credulous mind of the period. Like others of his craft, he was an itinerant operator, not embarrassed with too much knowledge of anatomy, and France was mainly the scene of his labors. After him, Rau in Holland pursued the same practice.

It will be interesting to you to know what was going on meantime in our own country. Most patients, up to the end of the 17th century, who were cut, submitted either to the old operation "on the gripe," or to the "Marian." In the beginning of the 18th century the high operation was first practised here. At this period there came to London a Leicestershire lad, subsequently known as Cheselden, the celebrated surgeon of St. Thomas's Hospital; and he at first did the high operation. But he had heard of the recent successes of Frère Jacques' method, and tried it, modifying it as his experience suggested, until he performed almost exactly what we now call the lateral operation, and with the best results. His success was so great that in 1729, when he had performed the operation several years, and cut about one hundred patients, Morand, the French surgeon, was sent from Paris to see him operate, and report upon the subject. He reported to the Academy so favorably on the subject that Cheselden's operation became generally accepted as the best. A few years afterwards Cheselden retired, having cut 213 patients of all ages, with 10 deaths. Those are the first figures that we can depend upon in connexion with the operation, for, as I have told you before, the figures of the mediæval period are monstrous and incredible; for not only was the famous monk said to have cut 5000, but to have lost "scarcely any." Cheselden, who improved the mode and cut at all ages, including very many children (who are, as you know, extremely safe to cut), had barely 5 per cent. of deaths, which was an enormous result, and no doubt the greatest that had been yet made.

At this point the operation continued for some years until the end of the century, and then "the gorget" came into fashion. A few years ago a patient was rarely cut without it; now, I suppose, few of you know what it is. Originally one of the directors used in the "apparatus major," its edges were sharpened for the purpose of making the deep incision through the prostate. This was the idea of Sir Cæsar Hawkins, whose name was affixed to it; but subsequently almost every surgeon had his own gorget, making it wider or narrower, or altering it in some fashion or another. A great deal of mystery has been made of this instrument, but it is simply a wide knife with a beak at the end, which is kept in the groove of the staff.

In 1816, Dupuytren, of Paris, not being content with the lateral, introduced his bilateral operation. His object was to make the deep incision by a cut on each side of the prostate, instead of one large one on one side only. And he, with the same view of limiting accurately the extent of the wound, designed a special instrument for the purpose. This, the "two-bladed lithotome," is also a member of the ancient surgical armamentarium, made more elegant and manageable by modern skill. Instead of making the internal incision by pushing a cutting blade *inwards*, as with the knife or gorget, you carry this instrument [showing it] into the bladder along the staff, there open its two concealed blades, and drawing it towards you, cut your way *outwards*. You can arrange the blades so as to have the incision as wide or as narrow as you please.

In 1825 or 1830, the "median operation," often loosely spoken of as a revived Marian operation, came into some note in this country, and with it Mr. Allarton's name is chiefly associated. In the meantime, Civiale, in Paris, combined the median and the bilateral operations, and you have seen me frequently perform both of them here. Then Nélaton has recently performed the pre-rectal operation, which is, after all, only a carefully dissected bilateral operation.

I now come to the mode of performing the lateral and the medio-bilateral operations, and will give a few general hints which will apply equally to either. As I have said before, when we have to do with many details, let us try to revert to first principles, and define clearly the object we aim at. I told you that the object of lithotrity is to remove the stone without injury to the patient either from the stone or the instrument. In lithotomy you must have a wound, and the object is to make it in such parts as shall least endanger the bloodvessels, the viscera, or the neck of the bladder, and to remove the stone through the lower outlet of the pelvis with as little mischief as possible to any of those parts. When that problem is best solved we shall have the best form of lithotomy.

Now, in order to aid you to solve the problem for yourselves, I have placed before you a diagram drawn accurately from the preparation, showing the bones and ligaments of the pelvis, in the position for lithotomy. The lower outlet is opposite to us; it is in the patient filled by soft parts, and it is the opening into which you have to cut, and through which you must remove the stone, and in all that you do, you must be limited by its boundaries of bone. I like to have that in my mind's eye when the patient is tied up and I take my seat to operate. Here also are diagrams, showing two stages of the dissection of the perineum. But I take it for granted that you know your anatomy too well to require any detailed account here of the important parts involved in the operation. I shall simply name those which concern us. First, there is the pudic artery, safely sheltered under the pubic ramus; but it gives a branch to the bulb, a vessel to be avoided at the upper part of the space. Then in the same part is the bulb of the urethra, which is not to be thought too lightly of; indeed, it is the source of some of the chief dangers: it is a vascular expansion from the vessel named, and cutting into it is as bad as cutting into the vessel itself, if not worse. Next, there is the rectum in the middle and lower part, which it is also important to avoid. The other diagram shows the position of the prostate, which must be divided in the deep incision.

I will now very briefly touch on the principal steps of the operation. The patient's bowels are to be thoroughly emptied by an enema a few hours before. Do not trouble yourself about the quantity of urine in the bladder. Some think it very important that it should be full. Cheselden, on the other hand, preferred it to be empty, saying that in this condition the stone was easily found close to the neck of the bladder.

The first thing the operator does is to pass the staff into the bladder and find the stone. Never think of cutting a man if you are not perfectly satisfied that the staff is in contact with it. Frightful blunders have been made through indifference to this rule. Suppose, for example, the staff is in a false passage, and is not in the bladder at all: one shudders at the idea of an operation performed on a staff so placed—an exhibition distressing to all concerned—never to be forgotten either by the operator or by the bystander, and probably fatal to the patient. The "click," then, is to be distinctly audible to yourself and to a witness, and the staff is to be put into the hand of your best friend, who is to attend implicitly to your instructions, and to no others, whatever they may be. The patient is then to be tied up firmly; better still if secured by these leather anklets and wristbands, devised by Mr. Prichard, of Bristol, because they truly realise the proverb "fast hind, safe find," which our old friends the garters often did not.

Now, what are the instructions to your friend the staff-holder? You want it held firmly, and, of all things, not to leave the bladder. I don't think you will gain much by cultivating a fancy for any particular spot, such as right or left, or projecting in the perineum. If it is to be steady and in one spot, which is the main thing, there must be a point of support for it to rest against, and there is but one such spot in the whole region. Rely upon it, then, you had better tell him to keep it close to the arch of the pubes, well hooked up, with the handle pretty nearly vertical. Your fingers now traverse the region and find the lines of the rami, also the condition of the bowel, whether empty and contracted, or the reverse.

Now, relative to the first incision, different authorities advice different places at which to enter the scalpel and commence. Without discussing these, let me say that, as a rule, the usual spot should be, for an adult, an inch or an inch and a quarter in front of the anus, a little on the left side of the raphé. Go in boldly, slightly pointing upwards, near to or into the staff, and then gradually less deeply till you come out about three inches lower down towards the inner side of the tuber ischii. It is very pleasant to feel that you touch the staff in that first incision, and it saves trouble and uncertainty to have gone close to it, which you always ought to do; never let it be a timid, shallow cut, merely dividing the skin. The left index-finger follows, and should feel the staff easily through the tissues. Fixing the finger-nail upon it, the point of the knife is fixed firmly in the groove, and is run steadily on in contact with the staff. Keep the point up and you will be safe; let it down and you may slip out and get into the rectum, or nobody knows where. Simply go on, letting the blade be a little more horizontal as it proceeds. Go on till you are well into the bladder, not letting the point leave the staff. The depth of the incision will depend upon the angle which the knife makes with the staff: if you withdraw with the knife close to the staff, of course you will only make a wound the width of the knife; and if the edge is directed outwards and downwards against the soft parts, with a light hand, as you come out, you will make a freer and cleaner opening.' It is better to be rather free in cutting than otherwise [the presence of a large stone is assumed], but you must not make the incision too wide. There has been a great deal of good advice expended about this subject, the depth of the incision, but it is manifestly impossible for one man to make another understand what he means or what he does by any amount of talk. My belief is, however, that the result of our anxious care about this matter is, practically, that we are apt to cut rather too niggardly than too freely, and that the neck of the bladder, in consequence, receives severer injury from the stone and forceps than it otherwise would receive from the knife. This relates of course to adults; for in children you can scarcely find the prostate—it weighs but a few grains, and does not come in for a moment's consideration, and your knife goes far beyond its limits; yet these little patients are the safest to cut. Of course there is a very great difference in the two ages, due to the different conditions of puberty and childhood. To return. The incision being completed, your left index finger immediately follows close along the staff into the bladder, where you will probably just touch the stone. The finger goes firmly and deeply in, stopping the urine perhaps to some extent in its outflow, and accomplishes some dilatation of the parts. Then you slide the forceps closely along the palmar surface of the finger, and insinuate them into the bladder, which makes dilatation No. 2. Then, generally speaking, you have but to open the instrument carefully, yet widely, one blade flat at the bottom of the bladder, the other towards the top, and, closing the blades, the stone is probably between them. If it seems that you have a good hold, draw gradually outwards and downwards, easing or adjusting, if you can, with the left index; and so you make the third and last dilatation. Remember not to pull out horizontally and bruise the parts against the pubic arch, but downwards into the widest part of the lower pelvic aperture. [Diagram.] And don't be hurried for the sake of anybody else. You and your patient are to be, for you, at this moment, the only persons present, and your responsibility to him must never be forgotten for an instant through the influence of bystanders and lookers on.

I must now briefly add that you will search for a second stone, tie any vessel spouting within sight, insert the tube into the bladder, and stuff the wound round it if the hæmorrhage is free. The patient is placed in bed on his back, with one or two pillows under each ham, and the parts involved exposed to air and light, so that you see how the urine flows. The less meddling afterwards generally the better.

I have only time to say a word or two about the median and medio-bilateral operations. For the median, an incision is made in the line of the raphé from about two inches and a half above the anus, downwards as near to its margin as is safe, for you want all the space you can get. Dissecting down to the staff, with a finger in the rectum, and opening the urethra in the membranous portion or thereabout, you carry a director on into the bladder; your finger follows, and dilates, and then the forceps on that. Manifestly this will not do for large stones, which mainly, thanks to lithotrity, are what we have to deal with now. Hence the applicability of the "median" is extended by making it "medico-bilateral," and in this manner. Having performed the median, as just described, up to the point of opening the urethra, instead of introducing a director, you introduce the two-bladed lithotome, and when it is in the bladder you open the blades, and two moderate incisions are made, one right, the other left, as you draw the opened instrument outwards in the groove of the staff. These two operations I have now performed about thirty times, and I do not know, after all, that there is much to choose between them and the old "lateral." To make an accurate estimate, one requires at least 100 cases of each operation by the same hand. Nevertheless, I may say a word, finally, on the principle which essentially distinguishes these operations. They are the result of opposite convictions respecting the hazard of the knife. There is a set of men to whom anatomy is a bugbear, and who are afraid of cutting as much as is absolutely necessary; and there are other men less timid—mind, I don't say less cautious,—who regard the larger, freer style of operating as better than the small or fearful style. All surgeons, of course, tend more or less to fall into one of these two classes. The anatomical school have devised a variety of median operations in order to avoid certain bloodvessels, &c., and they sacrifice space in doing so. They answer excellently well for small and medium-sized stones; but these are or should be crushed now, and we do not want any operation for such stones. The perineal operation which offers the most room, the recto-vesical excepted, is the lateral operation. All the others named are essentially median operations. Now I am bound to say that formerly, judging theoretically, I had a leaning to the median method, being disposed to think that it would be attended with less hæmorrhage than the others. But I do not find this so in practice, and I have arrived at the conclusion that there is quite as much bleeding as in the lateral operation. I attribute this to the bulb. I regard the bulb as a large artery to all intents and purposes. You cut into that spongy tissue—not in all cases, but in some,—and there is as much bleeding as if you cut the artery of the bulb, and more difficulty in controlling it. The bulb must be cut more or less in the median operation. The problem is how to get into the bladder without wounding the bulb, its artery, and the rectum; and I believe that a well-performed lateral operation accomplishes this, where a free opening for a large stone is required, better than any other.

The next lecture will relate to diseases affecting the bladder itself.

## Original Papers.

# ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

## AS EXEMPLIFIED IN PRIVATE PRACTICE.

By Charles J. B. Williams, M.D., F.R.S.,

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### ABSTRACTS OF ILLUSTRATIVE CASES.

*(Continued from July No.—p. 403.)*

Case 5.—A clergyman, aged thirty-two, was seen by Dr. Williams in consultation with Dr. Hamilton Roe and Mr. Young, for the first time March 25th, 1846. He had lost four sisters by consumption. Three years ago, after great exertion of voice and close application to work, he became hoarse, and had remained so ever since. Cough came on five months ago, with expectoration and shortness of breath, but no wasting. Wintered at Ventnor. Physical signs: Dulness and cavernous sounds in upper part of right side of chest. Breath rough below left clavicle. Sputa opaque and heavy. Was ordered a combination of nitric and hydrocyanic acids, iodide of potassium, and sarsaparilla, and to use iodine ointment. Lost cough at Ventnor, and went to Bridgewater, which did not agree with him.

Aug. 21st.—Has been at Minehead, taking cod-liver oil regularly, using salt friction three times a day, and keeping a blister wound open. Has improved except in breath, and expectoration is still ramiform and opaque. Physical signs diminished: slight and irregular dulness in upper part of right chest; tubular sounds above and below right clavicle and scapula.

June 10th, 1848.—Wintered first at Malta, which he found too irritating to his chest; next at Pisa, where he grew weaker, but was improved by the voyage. Physical signs: Still slight dulness; loud bronchophony and irregular breath-sound below right clavicle, but much good vesicular breath- and stroke-sound. Breath rather irregular below left clavicle. Ordered iron in combination with the oil, on which he gradually improved wintering generally in Devonshire during the following years.

January, 1868.—Quite well and active; conducting a large school, which he has done for the last twelve years. Can walk, preach, and bear exposure to any extent; and has no cough. Physical signs: Still dulness and tubular sounds in upper right chest, most above scapula. Marked tubular sounds above left scapula. Although the physical signs have not entirely disappeared, they are greatly diminished since the first examination twenty-two years ago, and may be supposed to indicate contraction and obliteration of the cavity In fact, they may be considered signs of the vestiges of disease, rather than of actual disease, as the patient has enjoyed excellent health for the last twelve years; and *upwards of twenty-two years* have elapsed since the first symptoms appeared.

Case 6.—An unmarried lady, aged eighteen, first consulted Dr. Williams Dec. 13th, 1845. Always delicate; often pain in left side; and once had hysterical paralysis. Slight cough for one year, increased in last two months. Great superficial and spinal tenderness on left side. Physical signs: Slight dulness and tubular expiration in right interscapular region.

August, 1849.—Has been generally better for iron, zinc, and open air. Has wintered at Ventnor or in some mild climate. Latterly had more cough, and lost flesh; but regained it by riding. Dulness and tubular expiration in upper right chest. Ordered oil, with an acid tonic.

June, 1850.—Wintered at Ventnor, taking oil regularly, and much improved; yet there are dulness and cavernous sounds in right upper back.

April 26th, 1852.—Continued the oil a year, and taking regular rides; was well, except slight cough and expectoration, and short breath. Less dulness; no cavernous sounds, but tubular above right scapula. To continue the oil in tonic of nitric and hydrocyanic acids, and tinctures of hop and orange.

Sept. 7th.—Left off the oil, and since has been taking porter with meals. No cough since May; but has had an itching, papular eruption, ending in slight desquamation, which has in the last week spread over the whole body, accompanied by smart fever and scanty high-colored urine. These soon subsided under cooling treatment; and from this time the patient had little cough, but more symptoms of rheumatism and palpitation.

Jan. 2nd, 1864.—During the last ten years has suffered little in the chest; but lately had congestion and enlargement of the uterus, and was obliged on that account to leave off riding. Spent the last two winters at Mentone, where she was leeched and cauterised fifty times. Now better, but cannot walk. Has taken oil and hypophosphite of soda, and gained flesh. Often has attacks of catarrh and cough, with pain and tenderness in right chest, as at present. Some dulness and tubular sounds in upper right. Collapse below clavicle. Ordered oil in phosphoric acid and tincture of nux vomica, and tincture of iodine externally.

March, 1866.—Was much better till last six months, when after much anxiety and exertion has had more cough and expectoration, occasionally tinged with blood. Pain in right chest, and occasional palpitation. Took oil four months; none during the last month, but hypophosphites twice a day. Loud tubular sounds in upper right. Ordered oil, with phosphoric acid, hypophosphite of lime, and tincture of quassia.

May, 1867.—Chest symptoms soon relieved. In end of summer had a severe pain in left knee. for which a blister was applied, and brought on violent inflammation; and was laid up all winter at Ventnor, supposed to have disease of the joint. A surgeon from London negatived this. Joint still painful, but not swollen. Has much superficial tenderness down the spine, and other neuralgic pains.

Feb. 1868.—Under valerianate of zinc, iron, and strychnia, the hysterical neuralgia was sufficiently relieved to enable her to walk and ride a little during the summer. Lately confined to the house, and more ailing; but chest remains quiet. Still signs of partial consolidation and contraction at right apex.

The lung-disease was distinctly arrested in this case under the treatment; was further superseded by the occurrence of the cutaneous and rheumatic affections at one time, and more recently by the uterine and neuralgic disorders; and may be considered now as quite quiescent, *twenty-four years after the first symptoms.*

CASE 7.—A gentleman aged thirty. Height, six feet. Two sisters died of phthisis.

Nov. 6th, 1845.—Quite well and active till, six weeks ago, after wading in water and repeated chills, he had congestion of the left lung, with pain, a little cough, and extreme weakness. He was treated by blisters, iodine internally and externally, and was now much better. No cough or pain, but weak and thin; appetite good; pulse weak; easily excited. Physical signs: Slight general dulness and deficient motion and breath in the left chest. Some tubular sounds within the scapula. Systolic murmur to the left of midsternum and a little upwards, heard in the left back, but not in carotids (pulmonary). He was ordered a mixture of iodide of potassium and nitric acid, with orange infusion; and iodine liniment.

Jan. 26th, 1849.—Has continued in delicate health ever since, with cough in winter and occasional slight hæmoptysis. More blood expectorated three weeks ago, and more cough since. Physical signs: Dulness through the left chest, most in mid-regions, especially at the scapula, where a cavernous croak is heard on deep breath; subcrepitus in other parts. Takes a tablespoonful of oil twice daily. To continue oil, with mixture of nitric and hydrocyanic acids, calumba, and orangepeel.

Feb. 26th.—Much better. At Ventnor, and gained five pounds in weight.

July 14th, 1852.—Got much better but now in Parliament, often out late, and taking oil irregularly. Cough and greenish expectoration. Has lost flesh. Physical signs: Dulness, deficient breath, and large croak-sound through the whole upper left, front and back. To give up late hours. Oil, tonic, and liniment regularly.

Oct. 17th, 1852.—Taken oil steadily in the country and much improved, till last fortnight, fresh cold, pain in the chest, cough, and tinged expectoration; sweats. Physical signs: Dulness and cavernous croak at upper left; breath obscure below. Large tubular sounds above the right scapula.

1865.—Continued oil and care several years. Got quite well, and now some years married.

1867.—Continues well, *twenty-two years after first symptom.*

CASE 8.—A gentleman, aged twenty-six, first consulted Dr. Williams on June 15th, 1848. He had long been subject to occasional cough, which had become constant during the last two months and was accompanied by expectoration, loss of strength and breath, though not to any extent of flesh. Had improved on iodide of iron bark, and counter-irritation with tartarated antimony. Physical signs: Dulness, crepitation, and loud tubular sounds above and below left clavicle; loud tubular expiration above right scapula. Ordered oil, with nitric acid and tincture of orange, and counter-irritation with acetum cantharidis.

Aug. 23rd.—Has taken oil, and is much improved in flesh, strength, and breath; cough stopped till last few days, when he caught fresh cold. Physical signs the same.

Sept. 25th, 1851.—Continued well, taking "gallons of oil;" but cough has increased in the last three months: otherwise strong and stout. Dulness and cavernous sounds above left scapula.

Sept. 21st, 1857.—Well since, taking oil occasionally. Has had hardly any cough till the last month. Physical signs: Dulness and tubular sounds at and above both scapulæ, mostly the left.

Feb. 17th, 1862.—Continued pretty well, but always short-breathed on exertion, and more so lately, with pain in the left side. Has had no oil for five years, but has been living well, and taking beer freely. Physical signs: Dry cavernous sounds in upper left chest; large tubular sounds above right scapula; breath good in front. Ordered oil in the above tonic, with tincture of calumba.

May 3rd, 1863.—Out all the winter, but lately distressed about his wife, who is phthisical, and suffering from mental depression. Has now more cough and expectoration. Dulness and dry cavernous sounds above both scapulæ.

March 21st, 1866.—Looks stout and well, but has always cough and expectoration, which have increased in last three months; also has piles. Lost his wife about a year ago, Cavernous sounds at and above left scapula; obstruction and crepitus in front; tubular and bronchial rhonchus above right scapula. Ordered oil with phosphoric acid, tinctures of calumba and orange, and an electuary of senna with sulphate of potash.

Oct. 27th—Has continued to take oil in various tonics, quinine and sulphuric acid, afterwards phosphoric acid, hypophosphite of soda, and quassia, accompanying it occasionally, when the urine was thick, with an effervescing saline. Lately breath short, and occasionally blood in the expectoration. Ordered oil in nitric acid and tincture of nux vomica.

Oct. 23rd, 1867.—Has been living at Bognor, tolerably well, except occasional slight hæmoptysis and piles. In last few days cough has increased. Physical signs: Cavernulous sounds in upper left chest; obstruction and subcrepitant sounds in lower part; puerile breath in right, except at and above scapula, where sounds are tubular.

In this case cavities formed in both lungs; but in the right cicatrisation probably took place In the left the cavity has contracted, and other parts have become emphysematous. The puerile breathing in the sound part of the right lung testified to the extent to which its powers were taxed. This patient is now living, in fair health (March, 1868), but short-breathed, and is remarkable for his stout and ruddy appearance. More than *twenty years* have elapsed since his first attack.

CASE 9.—A gentleman aged thirty-five first consulted Dr. Williams on May 17th, 1842. Six years ago had slight hæmoptysis, and again two months ago, since which date has had morning expectoration, but little or no cough. Physical signs: Dulness and obscure cavernous sounds under both clavicles; voice loudest under right, but dulness most marked below left and within right scapula. Ordered a tonic of nitric acid, sarsaparilla, and hop, and counter-irritation with iodine liniment.

June 29th.—Much improved. Physical signs: Dulness most below sternal end of right clavicle and below humeral end of left; cavernous sounds still in upper right.

Dec. 14th.—Still dulness in right front down to mammary region, with cavernous sounds above and bronchial below; expiration loud and hollow on right side.

April 17th 1843.—Wintered at Hastings pretty well. Occasionally slight hæmoptysis.

April 18th, 1844. Wintered in Italy. Generally well, but languid. Still loud tubular sounds below right clavicle.

Nov. 1st, 1845.—Well, till a few days ago, when he spat a little dark blood. Dulness and loud tubular sounds in upper right chest. Expires 180 cubic inches, considerably under the proper figure for his height (5ft. 9¼ in).

About fifteen years after this date was seen by Dr. Williams for an attack of bronchitis. He had passed part of several years in the south of Europe, but of late had resided in the west of England, and had become stronger and pretty well in health, but always rather short-breathed, and liable to occasional attacks of wheezy bronchitis, as at that time. There was no remaining dulness or cavernous sound, but whiffy tubular breath above both scapulæ, and the ordinary prolonged wheeze of asthmatic bronchitis below.

In this case the physical signs indicate considerable disease, and a cavity in the right lung in the first year, which in the second diminished to simple consolidation and contraction, and which, although curing the consumptive disease, probably became the cause of the asthmatic character of the bronchial attacks from which he afterwards sometimes suffered; in the meantime he enjoyed tolerably good health.

*Eighteen years* had elapsed since his first visit, and *twenty-four* since the first symptoms.

Case 10.—A gentleman, aged thirty-two, first consulted Dr. Williams Nov. 27th, 1856. His brother died of phthisis. Was attacked with influenza two years ago, and ever since had cough and grey expectoration, increasing in winter and diminishing in summer. In last three months sputum has become pink, and patient has lost flesh, strength, and breath. Physical signs: Some dulness and decided tubular breath at and above both scapulæ, mostly left. Ordered oil in a tonic of nitric and hydrocyanic acids with tincture of orange.

June, 1857.—Wintered at Pau, taking oil &c. till April. Lost cough and expectoration, and gained flesh and strength. Then went to Eaux Bonnes, and left off the oil. Lost flesh, but otherwise remained well, walking three miles and riding twenty daily. Cough returned in last fortnight. Physical signs the same. To resume the oil.

May, 1858.—Wintered well in South of France and Italy, generally taking oil. Is stronger and stouter.

March 5th, 1859.—Well till middle of January; since then cough and opaque expectoration. Physical signs: Dulness and tubular sounds in upper part of both lungs, especially in left, where there was some moist rhonchus.

June 24th, 1861.—Well and taking oil till February, when he became bilious, and omitted oil for two months. After fresh cold, cough came on, accompanied lately by expectoration and pain in from of left chest. Physical signs: Dulness, deficient motion and breath in upper part of left chest, front and back. Loud tubular sounds at and within scapula. Urine scanty and high-colored. To continue oil in a tonic of strychnia, and tincture of orange. Also to take an effervescing saline at night for a short period, and to use counter-irritation with tincture of iodine.

May 16th, 1862.—Went to Scarborough, and gained three pounds. Physical signs also improved in autumn. Wintered at Pau, taking oil regularly, and out of doors a good deal. Cough slight and strength good. Physical signs: Dry tubular sounds at and above both scapulæ; mostly left, where there is dulness.

Oct. 15th, 1862.—Well, and in London at his office (solicitor) the whole summer.

Oct. 30th, 1863.—Worked in London all the winter, and tolerably well till summer, when cough increased after exertion, and the expectoration became tinged with blood. Has taken the oil regularly. Physical signs: Flattening and obscure breathing in left front; dry cavernous sounds above left scapula; loud tubular above right.

May 16th, 1865.—Continued well and in business, with only occasional cough till lately, when only took oil once a day (instead of twice) Patient at present weak and exhausted, with irregular pulse. Ordered oil twice a day in tonic of hyperphosphite of iron and strychnia. Soon improved, and has lost cough.

1867.—Has continued well, and at his business ever since. Physical signs: Dry tubular sounds at and above both scapulæ.

*Thirteen years* have elapsed since this patient's first symptoms.

Case 11.—Mr. ——, aged thirty-two. Jan. 14th, 1852. Well till, two months ago, he caught cold, and since has had severe cough, with copious greenish expectoration. Has been taking quinine in last three weeks, and cough worse, with much pain in chest, especially on the left side. Urine very thick. Physical signs: Dulness and tubular sounds above the right scapula; moist crepitus below. The same on left side, but to less extent. Ordered cod oil in mixture of iodide and carbonate of potass, hydrocyanic acid, and orange-peel; and liniment of acetum cantharidis.

Feb. 11th.—Taken medicines well, and is very much better in all respects. Has been at Hastings. Crepitus gone. Breath-sound still weak in right chest.

July 18th.—Lost cough since May; and is stronger and more active than ever. In May had discharge from right ear, which is still deaf. Still tubular sounds above the right scapula. Breath pretty clear below.

Dec. 6th, 1859.—Continued well and active till last June, when after much excitement and exertion at an agricultural meeting, he had an attack of bronchitis, with much expectoration, sometimes fetid, and was much reduced. Has since improved, but still coughs. Lately very bilious, and taken no oil. Dulness and tubular sounds in upper right. Small cavernous voice and croak above the right scapula. To take oil in mixture of calumba and nitric acid; and used catharides liniment.

July 2nd, 1862.—Continued the remedies without difficulty, and regained flesh, strength, and activity. Gained six pounds, and often walks twenty miles. Was out as usual last winter. Has still some cough and expectoration. Taken no oil for two years. Tubular sounds at and above both scapulæ, left as much as right; but no crepitus or rhonchus.

Feb. 21st, 1867.—In the last five years has taken little oil, as it made him bilious. Cough has increased; breath become shorter; and now can walk only two miles. Nails convex. Dulness, collapse, and moist cavernous sounds below the right clavicle. Breath much obstructed all down the right back. Tubular sounds above the left scapula. To resume oil in mixture of nitric acid, strychnia, &c. Upwards of *fifteen years* have elapsed since this patient's first symptoms. His latter deterioration came on after long suspension of treatment.

Case 12.—A brewer's clerk, aged twenty-five, first consulted Dr. Williams on September 13th, 1847. A year and a half ago he had syphilis, and was treated by mercury for three months. Eight months ago an eruption appeared on the skin, followed by cough, slight at first, but afterwards becoming violent, with purulent expectoration, and lately accompanied by sweats, and loss of flesh, strength, and breath. Physical signs: Marked dulness below left clavicle, extending to mammary region; gurgling sounds and crepitation around; loud tubular sounds within and above right scapula. Ordered oil, and counter-irritation with iodine liniment.

May 24th, 1848.—Has taken oil regularly all the winter, and has quite recovered flesh and strength. Cough slight, with scanty, opaque morning expectoration; still dulness in upper left chest, with dry cavernous sounds above and below clavicle, but no crepitation; vesicular sound fairly heard in lower chest; less tubular sounds in right lung.

Sept. 1850.—Quite well, and taking active exercise; dulness much diminished; some tubular sounds in upper left chest, front and back; no cavernous sounds, but breathing harsh.

Dec. 26th, 1856.—Heard from Dr. Carlill that the patient has just died suddenly of peritonitis from intestinal perforation. He had been well and actively engaged in business till ten days before his death, subject only to occasional attacks of headache and costiveness. After walking a mile, he was seized with sudden and severe pain in the abdomen, with collapse, and other symptoms of perforation, and died in two days.

A post-mortem examination was made by Dr. (now Sir William) Jenner. The abdominal walls were found to be covered with fat, an inch thick. The ileum, just above the cæcum, was perforated by ulcers of a tuberculous character, of which there were several. Both lungs were strongly adherent at their apices, especially the left, and in both cretaceous matter was found—in the right varying in size from a pin's head to a pea; but in the left lung there was a large mass of the same material, which quite filled the ancient cavity at the summit of the lung.

This patient had been free from chest symptoms for eight years. This case is less remarkable for the duration of his life after recovery from the third stage of consumption than for the completeness of the cure of his chest symptoms, and for the demonstration it afforded, after death from another cause, of the arrest of the tuberculous disease which had made rapid strides eight years before.

The cases hitherto related contain many points of interest with regard to the development, progress, and arrest of consumptive disease; but they have been cited chiefly on account of their remarkable duration, all of them exceeding ten years, and many exceeding twenty. It would be easy to multiply such instances, as our 500 tabulated cases, selected within the limits mentioned in a former paper, include no fewer than 287 of ten years' standing and upwards; but it would be wearisome to quote even the abstracts of such numbers. It will suffice to add, as further samples, eight more, which, with those already related, will make up twenty *illustrative cases* of consumption in the *ordinary tuberculous form*. Statistics will be given of the whole number hereafter; and in our next paper we propose to exemplify the other varieties of consumption, by adducing cases of the *hæmorrhagic* and *inflammatory* forms.

Case 13.—A gentleman aged twenty-four. Had lost a brother in consumption, and consulted Dr. Williams about himself on Dec. 23rd, 1852. In June had influenza, and since then had been weak, with occasional colds. Last September, after a chill, had pain between the shoulders, short breath, slight cough, and bubbling noise in chest. Symptoms improved, but pain returned in three weeks, affecting back and left side, and was relieved by blistering and croton-oil liniment. Cough has continued since, and is accompanied by opaque curdy or yellow expectoration. Physical signs: Slight dulness; deficient breath in upper left chest; tubular voice near spine. Ordered oil in tonic of nitric and hydrocyanic acids. with tinctures of hop, henbane, and orange.

Sept. 23rd, 1853.—Wintered well at Torquay, taking a teaspoonful of oil four times daily. Had hæmoptysis to the amount of two drachms once. Breath weak, but clearer in left chest. Dulness and tubular sounds in upper right chest. Pain in left side during last two weeks. Ordered to winter at Pau.

Sept. 1859.—Wintered at Pau, taking the oil the first year. Afterwards moved to Bagnères de Bigorre, and lived much in the mountains, practising photography. Entirely lost cough and weakness of chest, living a great deal in the open air, and ascending mountains, both in summer and winter, without any detriment.

Quite well and active in 1868, nearly *sixteen years* after his first symptoms.

Case 14.—A clergyman, aged twenty-five. Nov. 2nd, 1854. Twenty years ago had severe inflammation of lung; but has been well and active since till twelve months ago, when he had gastric fever. Has since taken less animal food, and felt weaker. In last few months had much mental exertion in preparing for ordination, after which, three weeks ago, he brought up several mouthfuls of blood, with slight cough. Has been very weak since. Physical signs: Defective motion and breath, and moderate dulness in upper left chest; moist subcrepitus below clavicle. Tubular sounds above right scapula.

June 14th, 1855.—Taken oil with acid tonic till spring. Improving in all respects. Cough slight.

Nov. 5th.—Quite well all summer, except short breath, and some opaque expectoration in morning. Walks six or seven miles. Physical signs: Still deficient motion, dulness, and large tubular sounds in upper left chest, most in front; breath weak and tubular in upper right.

June 17th, 1856.—Wintered at Hyères, Rome, &c., feeling well, and using regular exercise. Physical signs: Dulness and tubular sounds rather less marked in front; more tubular above right scapula, where there is a click on deep breath.

Nov. 4th, 1858.—Has continued to take the oil in phosphoric acid tonic, and keeps up flesh and strength, doing occasional duty, but breath always short on exertion. Only occasional opaque expectoration. Physical signs: Tubular sounds loud in both upper regions, most in right, where a click is audible on deep breath.

Nov. 4th, 1860.—Continued well till about a month ago, when he had an attack of fever, cough and expectoration, and is much reduced. Physical signs: Extensive dulness and obstructed breath in left chest; only obscure crepitus in parts; large tubular sounds above. Oil, which had been left off for some time, to be resumed, with acid and quinine; and free vesication with acetum cantharidis.

June 20th, 1861.—Wintered at Torquay, taking oil, &c., and gradually recovered flesh and strength; able to ride regularly, but breath always short. Cough and expectoration increased since much exertion a fortnight ago. No liniment lately; only a small spot of cautery on left chest. Urine scanty. Physical signs: Extensive dulness, obstructed breath, and coarse crepitus through left chest; cavernous in upper. Ordered, nitric acid with oil; effervescing saline at night; acet. cantharidis liniment.

This attack gradually subsided, and he lived on for six years more, always taking oil and living well, except when prevented by attacks of inflammation of the lung or pleura (of which there were two or three) and hæmoptysis, of which one at Windsor, in 1865, amounted to six ounces. His recovery from these attacks was wonderful; and in a quiet way he continued to enjoy life, passing one winter at Mentone (which disagreed), two winters at Pau, and two more at Torquay. Latterly the hypophosphites of soda or lime were added to the acid mixtures taken constantly with the oil, with manifest advantage to the nourishment of his body, which was pretty stout to the last; but shortness of breath and weakness gradually increased, and the signs of cavities were obvious in both lungs. Contrary to advice, he went again to Mentone, and died there early in the winter of 1867.

The duration of this case (*upwards of thirteen years*) is remarkable, considering the extent of disease even at first, but more so when its great increase in 1860, and subsequently, is taken into account; yet, under the influence of rest and favorable climate, and with constant use of oil and tonics, and counter-irritation, great improvement took place again and again from conditions which seemed almost hopeless.

Case 15.—A gentleman aged twenty. Brother died of phthisis. Feb. 5th, 1846. Fair complexion; red hair. Well till November, when he caught severe cold, and had cough ever since, lately with much phlegm, which he has not the knack of expectorating. Lost much flesh and strength. Pulse frequent. Sweats much at night. In country since Christmas; but no better. Physical signs: Dulness and defective breath in upper right back. Collapse below right clavicle. Some dulness and deficient breath below left clavicle. Liver dulness increased below ribs. Ordered mixture of nitric acid, iodide of potassium, hydrocyanic acid, and sarsaparilla. Rhubarb-and-taraxacum pill every night. Acetum cantharidis to chest.

March 20th. Been at Clifton, and in three weeks lost cough and sweats. Is improving in flesh. Pulse still frequent.

Oct. 6th, 1847.—Feels quite well. Passed last winter in Cornwall. Has had no cough for three months. Breath still rather short. Slight dulness and weak breath in upper left only. Expires 276 cubic inches. Height 5 ft. 10. in.

1866.—Heard that he continued quite well, having had no return of chest symptoms—*twenty years* after first attack. The combination of nitric acid, iodide of potassium. and sarsparilla was commonly used by Dr. Williams in incipient phthisis with benefit before it was superseded by cod-liver oil, the efficacy of which was obviously much greater and more general.

Case 16.—A delicate boy, aged eight, whose father had died of phthisis, was first seen June 28th, 1853. Had cough since influenza six weeks ago. Soon after was seen by Dr. West, who found dulness and coarse crepitus in upper left. Had lost flesh, and had profuse perspirations; but had taken oil for a fortnight, and much improved. Physical signs: Dulness in upper half of left chest, with loud tracheal note on percussion at the top; large tubular breath and voice sounds also, with coarse crackle in parts; large tubular sounds above right scapula. The oil to be continued, with acid tonic, and acetum cantharidis to be applied from time to time on left chest.

1861.—For several years he continued delicate, requiring constant care, and always taking the oil with varied tonics; residing generally at Tunbridge Wells or on the south coast. The signs of cavity became very distinct, but in two or three years they diminished as the general health improved; and now there are only dulness and tubular sounds below the clavicle and above the scapula, and weak vesicular sounds below. Flesh and strength now pretty good for a lad of sixteen.

July 21st, 1863.—Continued well and active till three months ago, when he had a severe cold, with signs of bronchitus affecting the right as well as the left lung, and the large tubular sounds and coarse crepitus reappeared there. After repeated blistering and continued use of the oil, he gradually recovered, and has now only moderate cough and rather short breath, but his strength is good, and he walks ten miles. Still coarse crepitus in upper left front; dry cavernous sounds above left scapula; large tubular sounds above right scapula, but breath quite good in other parts.

This patient has not been seen since; but Dr. Williams has lately heard that he recovered, *fifteen years* having elapsed since his first symptoms.

Case 17.—A gentleman, aged twenty-four, first seen July 1st, 1853. In April, whilst acting as officer in Militia drill, after shouting, expectorated about a dessertspoonful of blood; and since smaller quantities, with a feeling of tightness and soreness of the chest, and some cough. Has lost flesh and strength. Been kept low, taking acids, &c. Last night brought up half an ounce of bright blood, and the sputa are still deeply tinged. Chest feels tight. Pulse 90. Physical signs: Dulness and moist crepitus at right scapula. Was cupped to eight ounces on scapula. Acetate of lead, with excess of acetic acid, and a little opium, given every four hours, and every morning a draught of sulphate of magnesia, with sulphuric acid.

July 2nd.—Chest relieved. Pulse quiet. Dark blood in sputa. Physical signs: Much less crepitus: but still dulness and bronchophony in right scapular region.

Cough and occasional slight hæmorrhage continued a month after; but, under the oil and sulphuric-acid mixture, and external counter-irritation, great improvement took place, and the cough ceased. Physical signs: Crepitation gradually cleared away, except in one spot, where a croak was sometimes heard. Still dulness and tubular sounds.

June 12th, 1854.—Been taking oil and acid mixture the whole time. Wintered at Naples and Rome. Been free from cough and hæmorrhage, and greatly improved in flesh and strength. In last week only has had a cold and cough. Physical signs: Still some dulness in right scapular region, but no tubular sounds. Some catarrhal rhonchi in various parts from fresh cold.

1861.—Been quite well. In Parliament since 1856. Now married.

1868.—Quite well, *fifteen years* after the first attack.

Case 18—A clergyman, aged fifty-two, first consulted Dr. Williams on July 20th, 1848. Had been subject to occasional cough since he had the measles in childhood. Has had severe cough and scanty expectoration since a bad chill a year and a half ago, and in last six months has lost much flesh and color, and now sweats at night. Physical signs: Dulness and tubular sounds on both sides of upper chest, but most in right front. Ordered oil, with orange mixture and an iodine liniment.

Aug. 11th.—Cough better, but in last few days has had sharp pain and great tenderness in left shoulder-joint. Ordered, iodide of potassium and colchicum with the oil.

26th.—Pain soon relieved. Cough moderate.

April 14th, 1849.—Has become quite well and strong, and has gained fifteen pounds since July. Still tubular expiration at and above left scapula.

1868.—Well and active, *more than twenty years* since first attack.

Case 19.—A young gentleman, aged fifteen. May 11th, 1857. Maternal aunt died of phthisis. In last Christmas holidays, after a chill, had pain in right side, and some cough ever since. Ten weeks ago had a severe chill after playing at football, and since has suffered much from cough and weakness, loss of appetite and breath. Physical signs: Dulness, defective motion and breath-sound, in whole right chest; tubular sounds at and above scapula. To take oil, with nitric and hydrocyanic acids in orange infusion, and use acetum cantharidis.

June 16th.—Much better. Cough nearly gone. Says breath is not short now. Physical signs: Still dulness and tubular sounds at and above right scapula.

Nov. 22nd, 1866.—Took oil at times for several years, and improved much in general health and strength, but always found himself rather short-winded on exertion, and sometimes rather wheezy; still he has kept his terms regularly at Cambridge. and studied with such success that he came out senior wrangler. Has continued well till six weeks ago, when he caught a cold, and has had slight cough since, with an occasional feeling of faintness. Physical signs: Bronchophony above right scapula; percussion- and breath-sounds generally clear. To take oil with iron tonic.

1868.—Continues well (eleven years since his first symptoms). Has now become Fellow of his College.

Case 20.—A lady aged forty, who had lost a sister from consumption, first consulted Dr. Williams on June 20th, 1849. There had been slight cough and expectoration for a year and a half, for which she had been long treated with steel, without benefit. Physical signs: Amphoric stroke and loud cavernous sounds above right clavicle and scapula; the same signs below clavicle, though less marked. Ordered cod-liver oil.

July 13th.—Heard that she was suffering from increasing weakness, diarrhœa, hoarseness, and copious expectoration. *Oil had not been taken.* Ordered a tonic of nitric and hydrocyanic acid, and tincture of orange, to be combined with oil at a later date.

Nov. 20th.—Has taken oil regularly, and much improved in the last three months, having lost her cough for the first time in two years, and grown fat and strong. Physical signs: Dulness and large and loud cavernous sounds above right scapula, and to a less extent below right clavicle.

1856.—General health good; no cough, but physical signs the same.

1868.—Alive and well, *twenty years* after first symptoms.

In this case the disease was limited to the very apex of the right lung, ending in a cavity, which remained dry long after the patient's restoration to health.

*Note.*—In the abstract of Case 6, there was an inaccuracy which requires correction. It is there stated that the patient "spent the last two winters at Mentone, where she was leeched and cauterised fifty times." The original notes are as follows:—"Jan 21st, 1864: Generally better in chest. Only occasionally colds. Of late years, leucorrhœa and uterine irritation sometimes relieved by leeches before period. Last two winters at Mentone; had caustic fifty times, and better, but still cannot walk much. Taken oil, &c." It appears therefore, that there was no leeching at Mentone; and the patient's own expression, that the caustic was applied fifty times, was probably an exaggeration, and merely meant to signify a great number of times.

*(To be continued.)*

## ON IMPROVED METHODS OF EXTRACTION OF CATARACT.

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### No. II.

In submitting an outline of the progress and development of the operation of extraction of cataract, I cannot avoid touching, though briefly, on the other two methods of removing the lens from the axis of vision—namely, that by solution and that by depression.

*Solution* or *absorption*.—This operation consists in lacerating the capsule with a needle introduced either through the sclerotic or through the cornea, and thus leaving the lens exposed to the action of the aqueous humor to be dissolved and absorbed. It is an excellent and safe method, but its employment must be restricted to (1) cataract of infants, excepting zonular, where artificial pupil is to be preferred; (2) adults before the age of forty; (3) fluid cataracts at all ages. In these cases the operation by solution is more than likely to keep its ground amidst all innovations. But after the age of forty or forty-five, when the lens is generally of a denser consistency, and absorption less vigorous, it requires long time and frequent introduction of the needle, and thus becomes a tedious and unsafe procedure. Indeed, in old people, the chance of inducing blindness during the process of solution is very great, on account of the condition of the tissues, altered by senile metamorphosis, which, coming in contact with the swollen lens, are apt to take on inflammatory action. Neither is the process of solution to be thought of in traumatic cataract, even in young persons, when the internal membranes have suffered by the injury.

The operations of *depression* and *couching* have played a most conspicuous part in ophthalmic surgery. They are performed by introducing a needle through the sclerotic or cornea, and by thrusting the lens directly downwards (depression), or by pressing it downwards, backwards, and outwards, so that it should recline with its anterior face directed upwards; hence reclination or couching. In either case a bed is made for the lens in the interior of the eye at the expense of the broken-up cells of the vitreous humor. This operation originated at a period when the doctrine of Celsus and Galen was prevailing—viz., that the lens was the essential organ of vision, and that cataract was a pellicle formed in front of it, which could easily be depressed and removed from the pupil. Yet even after Kepler (1604) proved that the lens was merely a refracting medium, and Maitre Jan Heister, Saint-Yves, and Brisseau had established by demonstration that cataract was an opacity of the lens itself, surgeons still continued depressing on account of the facility of execution At one period of its history, indeed, as it seemed as if this operation was to take precedence of extraction. But, thanks to our better means of diagnosis, and to improvements in our operative procedures, couching has well-nigh disappeared from British practice, and will very soon have only a historic existence. Couching owes its long existence to the facility with which it can be performed. Nothing can be more easy than to put in a needle and push the lens out of sight; but alas for the consequences! In instituting a comparison between these two methods by authenticated statistics on a large scale—i. e., in 2073 extractions and 177 depressions—we find that, whilst 1 eye in every 10 is lost in extraction, 1 in every 3½ is lost in couching or depression.[*] Further, the worst issues of extraction are suppuration, panophthalmitis, and —loss of vision; but depression records four deaths in such able hands as Dupuytren,[†] and, what is worse, the miserable existence of some victims of that method caused by chronic irido-choroiditis. For the depressed lens may act as a foreign body, irritate the retina, or roll forwards against the ciliary processes and iris, and thus act as a constant focus of inflammation to harass the patient's life. For the arresting of this terrible issue of couching Desmarres first applied excision of a portion of the iris. "We cannot too soon," he says, "resort to that measure as the only means of relieving the pain, and of, sometimes, saving the eye from certain destruction through slow atrophy "[‡]

Professor v. Graefe achieved a great improvement in this department of ophthalmology, which entitles him to a fair claim on our gratitude, by extending the doctrine of excision of the iris (iridectomy) to the cure of glaucoma, on which he published a memoir in 1867.[§]

As the extension of iridectomy has in reality formed the basis of the modern improvements in the operation of extraction, and as a great deal has been written of late years on the cure of glaucoma by iridectomy—a subject over which much obscurity still hangs,—it may not be out of place, in view of its proper elucidation, to give here a *résumé* of the present state of the science in connexion with it.

The circle of glaucoma has been, perhaps too widely, extended by some modern ophthalmologists, who put under this category every diseased condition of the eye which in its *ensemble* gives rise to the rapid or slow development of intraocular pressure, from whatever cause it may arise. According to this view, irido-choroiditis, ectasis of the sclerotic, anterior adhesions, amaurosis with excavation of the optic nerve, &c., when associated with tension of the globe—yea, even hardness of the eye in consequence of mechanical injury, is called glaucoma or glaumatous. For, owing to the different phases which this disease may assume, the ophthalmoscopic and other symptoms in themselves are inconclusive unless they are associated with *tension* of the globe, rendering it hard when touched through the eyelids. This is the characteristic symptom which never fails, and may be considered as pathognomonic. Glaucoma, according to Graefe, is a choroiditis or irido-choroiditis with effusion by endosmosis into the vitreous and aqueous humors, the augmentation of which causes intraocular pressure, producing excavation of the optic nerve and iridoplagia. The latter is caused by pressure on the ciliary nerves in their passage to the iris; hence also anæsthesia of the cornea, &c. Now, finding that iridectomy produced good results in chronic iritis, in irido-chroiditis, and especially in lessening the tension in sclerotic staphyloma, he tried it also in glaucoma with successful results.

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[*] Rivaud-Landrau: Annales d'Oculistiques, 1862.

[†] Leçons Orales, t. iii., p. 335.

[‡] Maladies de l'Œil, t. iii. When iridectomy proves unavailing, and the eye is already amaurotic, enucleation is the only alternative to save the other eye from destruction by sympathetic ophthalmia.

[§] Archiv für Ophthalmologie, vol. iii , part 2.

This pathological basis has been very much called in question. Thus, Mr. Dixon "could not fail to be struck with the apparent absence of all causal connexion between the morbid changes of glaucoma and the means proposed for arresting them. We were told that the intraocular pressure was the cause of all the phenomena of glaucoma, without any very clear account being given as to what was pressed, and what effected the pressure."[*]

In a paper which I published about the same time,[†] I ventured to question the soundness of the theory advanced by the distinguished Berlin professor. I urged that there was no trace of iris in typical glaucoma; that the iris, on the contrary, was atrophied to such an extent as to make it often difficult to seize it with the forceps for excision. Nor is there choroiditis, strictly so called. On the other hand, it appeared to me, at that time, that the disease has its origin in the derangement of the fifth pair. More recently, however, in the course of an extensive discussion, I suggested that the whole range of glaucomatous symptoms may be accounted for on the hypothesis that it is the result of hyperæsthesia and spasmodic irritation of the sympathetic within the orbit. This will accord with Claude Bernard's experiments on the vaso-motor system: there is, in the first place, the dilatation of the pupil, caused by irritation of the sympathetic, which, in junction with the pneumogastric, furnishes filaments to the radiating fibres of the iris; there is also engorgement (nervous congestion) of the choroid, which gives rise to pressure upon all the ciliary nerves (both those proceeding from the ophthalmic ganglion to the sphincter iridis and cornea and those from the nasal nerve)—hence anæsthesia of the cornea, vitiated nutrition of the organ, tension, &c., rendering the phenomena more complex, and the *ensemble* tending to inevitable blindness.

As applicable to this subject may be quoted the explanation of the pathology of exophthalmic goitre as given by Trousseau, who regards the triad of symptoms present in Graves' disease—viz., hypertrophy of the thyroid gland, protrusion of the eyes, and transitory cardiac hypertrophy, as a "*nevrose a congestion locale*," having its proximate cause in the modification of the vaso-motor apparatus.[‡] According to this view the *modus operandi* of iridectomy in the cure of glaucoma is easily explained:—

1. The removal of a portion of the iris, by removing the nervous loops therein distributed, has the effect of a genuine neurotomy, and is strictly analogous to the removal of a part of the portio dura in tic douloureux, as first suggested by Allen Burns,[§] and recently adopted by Nélaton and others.

2. By removing a portion of the iris, we relieve the constriction which it and the ciliary muscle produce round the zonula of Zinn and the protruding lens, thus keeping up the disease.

3. The evacuation of the aqueous humor has undoubtedly its share in relieving the over-distension of the eyeball.

The same explanation would also apply to the advantages derived by Prof. Hancock's operation—section of the ciliary muscle. With reference to the theory of this operation, Nunneley's criticism seems to me to be in the main correct. It is not the section of the constricted muscle which gives relief, but the division of the nerves which meet there, and the tapping of the vitreous. It is well-known, however, that to render the effects of neurotomy lasting, it is requisite to remove a portion of the nerve; hence my preference for iridectomy.

Most recent opinions seem to tend in the direction of regarding glaucoma as a nervous lesion. Thus Donders considers it as hyperæsthesia of the fifth pair.[*] Prof. Magne of Bologna, after combating the views of Graefe for the reasons stated by me—namely, that there was no trace of iritis or choroiditis, but, on the contrary, an atrophied condition of those membranes,—ascribes glaucoma to an atrophy of the ciliary nerves.[†] Mr. Hart adopts my theory of glaucoma.[‡]

Now that more than a decade has elapsed since the introduction of iridectomy for the cure of glaucoma, abundance of materials has been collected for estimating its value; and it appears to me probable that more harm has been done by performing it in unsuitable cases than by undervaluing its advantages. My first trials of it, shortly after its introduction, convinced me of its value; but subsequent experience has proved to me that the extent of its utility is limited. I find it of greatest service in acute and subacute forms of the disease, especially in their early stages, and before the eye has become in any way disorganised by the progress of the disease. In short, whenever ciliary pain is present the operation is useful: either optically, in the view of restoring vision; or, at the lowest estimate, therapeutically, with the view of allaying suffering, which it can very nearly always be trusted to effect. In purely chronic or non-inflammatory cases, however, when blindness steals on gradually without pain or other acute symptoms, it is absolutely useless, whatever the degree of tension may be; as either no good result is obtained by its performance, or at best a very transitory one. Those who acted on the principle of performing iridectomy in every case where tension was present must, I conceive, by this time have been convinced that this position is untenable. For the credit of the operation, I find it best to avoid all surgical interference except where decided benefit may fairly be looked for.

Those who are opposed to the operation expatiate on the mutilation of the eye, and, on the various accidents accompanying it. As to the deformity of the pupil, there is absolutely none when the coloboma is made upwards. With regard to the risk, I am in a position, after having performed several hundreds of iridectomies for various purposes, to state most emphatically that

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[*] Diseases of the Eye, 2nd Ed., 1859.

[†] THE LANCET, 1859.

[‡] There is a preparation in the Aberdeen Infirmary Museum of a case of exophthalmic goitre, published by my excellent friend and Colleague, Dr. Reith (*Medical Times and Gazette*, Nov., 1865), in which the disease of the cervical ganglia was the principal lesion discoverable. A similar case is recorded in the *Gazette des Hôpitaux*, March 21st, April 16th, 1865.

[§] Surgical Anatomy of the Head and Neck, p. 287.

[*] Annales d'Oculistique, 1865, p. 121.

[†] L'Union Médicale, 1862; Ann. d'Ocul., 1863.

[‡] Ophthalmic Hospital Reports, 1866, p. 30

I am unable to call to mind a single case of distressing consequences,

As iridectomy forms part of our cataract operations, I shall explain my manner of performing it which differs in some respects from the methods usually adopted. I administer chloroform only to highly nervous patients, and in cases where the eye is much distressed by pain. The patient being in a recumbent position upon a couch, and the eyelids kept open by a spring speculum, the operation is divided into two periods. The first period is shown in Fig. 1: I stand behind the patient whom I order to look downwards; with the conjunctiva forceps in the left hand, I seize a part of the conjunctiva and subjacent tissue, and steady the eye; and with the curved lance in the right hand I enter into the anterior chamber through the conjunctiva, half a line or one line from the corneo-sclerotic junction; if the opening be insufficient, I enlarge it on either side in withdrawing the lance. Second period: I take the curved iris forceps in my left hand and the scissors in the right, and order the patient to look down, when I introduced the former into the anterior chamber seize the iris and withdraw it, into which I first make a vertical incision from the pupillary margin to its ciliary attachment; a flap of the iris thus remains between my forceps, which I put upon the stretch, and by other two cuts with the scissors in a horizontal direction I finish the section. Fig. 2 shows the second period, where the iris hangs only by a small pedicle before receiving the finishing cut. By this method I can measure the precise portion of the iris which I intend to remove, instead of making a random cut. When there is some blood in the aqueous chamber, slight pressure with Daviel's spoon upon the upper lip of the wound is sufficient to cause it to escape.

FIG. 1.

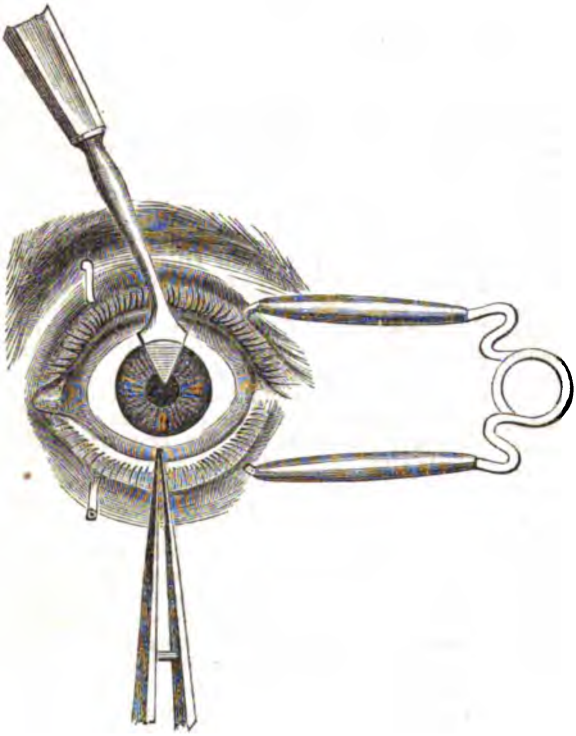
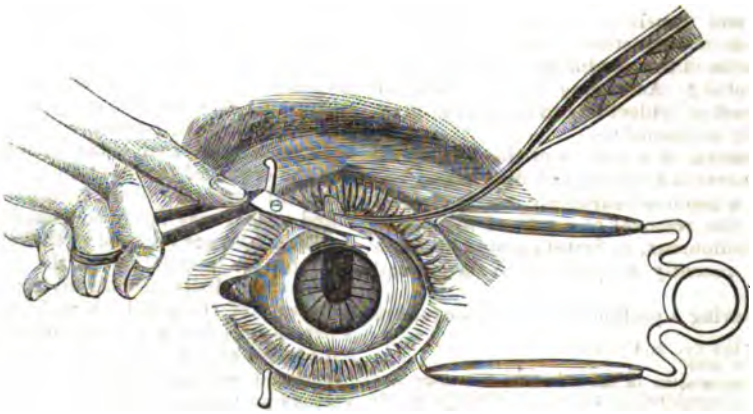


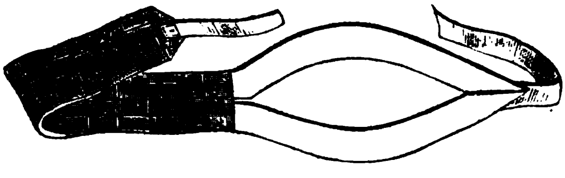
FIG. 2.



All the duties of my assistant in this operation are: to hold the speculum a little forward to prevent the pain caused by its pressure upon the orbit, and to hand me the instruments. I dispense also with an ophthalmostat in the second period. The operation is thus performed with the minimum of pain, most of which is caused by the pressure of speculum and fixation forceps.

To save description of the instruments, I have given in the engravings the precise size and form as drawn to a scale. After trying various specula, I have returned to that without screws, which are in the way, and are besides inconvenient when there is occasion to remove it quickly. Of scissors I use the small form, as it is easy to insinuate the probe-pointed ends under the conjunctiva to finish the section when a fold of it has fallen upon a portion of the iris. The dressing consists in three layers of lint or jeweller's wadding, secured by Liebreich's eye-bandage (Fig. 3), the circular part, made of broad tape, being fixed upon the back of the head, and the knitted part carried over the eyes. Rest for twelve hours is all the subsequent treatment. I have only to add, that I consider the risk of the operation so trifling that, in cases of emergency, I should apprehend no bad consequences from sending the patient some distance by train six hours after the operation.

FIG. 3.



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## No. III.

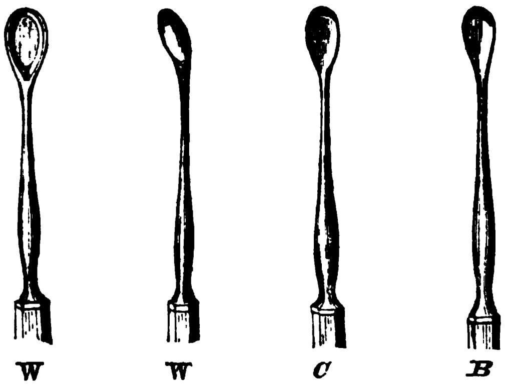
*Extraction by Schuft's method.*—The introduction of iridectomy for the cure of irido-choroiditis and glaucoma had the effect of familiarising us with the operation, and of extending its application to the extraction of cataract. The practice of combining the operation of extraction with that of iridectomy, performed either at the same sitting or at a previous period, had already been adopted by Desmarres in 1856, when, in the presence of Nélaton and others, he operated on Baroness Folgosa of Lisbon, and on General Lopez, in both which cases the cataracts were complicated with posterior adhesions. Von Graefe practised it also in some cases of soft cataract. But, whilst these able operators regarded it only as a means to be resorted to in complicated cases, and while Desmarres, as shown in his subsequent writings,[*] considered the integrity of the pupil as an essential point, Dr. Adolph Schuft (now Waldau) published a paper in 1860[†] proposing its general adoption, with the view of superseding the ordinary flap extraction. Waldau's operation consists in the removal of the cataract through a small corneal incision and a coloboma iridis, aided by a spoon which he devised for that purpose. Of this spoon he has four sizes, made of silver so as to allow of its being easily bent to suit the prominence of the brow, &c. This method, which he calls "spooning out the cataract," is performed in the following manner:—

1. The patient being in a recumbent position, and the eyelids being held up by an assistant, the operator fixes the ball with the forceps, and introduces a broad lance through the temporal side of the cornea, making the incision of about three lines. 2. With the pupil forceps the iris is seized, withdrawn, and excised. From the slit thus made the cornea is cut through vertically: hence the iris cannot be incised to its periphery, as is done for the cure of glaucoma, but there is left an arrow fringe behind, which protects the vitreous from prolapsing. 3. The capsule is opened with a cystotome. 4. The spoon, the size of which is regulated by the size of the nucleus, is introduced behind the lens, which is seized and withdrawn. If any fragments remain behind, a clean spoon is again introduced, and they are seized and withdrawn. On no account ought there to be a stirring about in the interior of the eye, to fish for floating fragments. By means of these spoons the author proposed to remove every lens, whatever may be its size and consistency, entirely, and without much damage to the organ, through a small wound entending through less than one-fourth of the corneal circumference.

Whatever may be the drawbacks of Waldau's method—and, indeed, it has many,—he certainly is entitled to the credit not only of having enriched us with an instrument which is an acquisition in ophthalmic practice, but also of having been the first to popularise the procedure based upon the principle of sacrificing a portion of the iris, for the sake of lessening the risk of a hazardous operation.

Waldau's method has been introduced with great *éclat* into this country by Bowman and Critchett, who practised it for upwards of three years since 1860 with the following modifications:[*]—1. They both administer chloroform in every case where practicable. 2. They make the incision at the upper part. 3. Mr. Critchett's incision, like that of Waldau, is in the corneal substance, not, however, close to the border, but half a line from its sclerotic junction; whilst Mr. Bowman makes the wound curvo-linear, passing through the sclerotic junction, in a plane about parallel to the iris. The incision thus made is near to the equator of the lens, and the iris is removed to its ciliary attachment. The size of the incision is from a quarter to nearly one-third of the circumference. After trial of this operation for upwards of three years these able surgeons became convinced that Waldau's spoon was seriously defective. Owing to its thick frontage and the sharp edges of its disc-like cavity, it is apt to break up the lens when soft, and dislocate it when hard, bruise the iris and lacerate the edges of the corneal wound. Mr. Critchett accordingly devised a new form of spoon. His slipper-shaped spoon, which acts like a wedge, is more readily inserted behind the lens. Mr. Bowman proposed another form, which he considers as taking a better hold of the nucleus.

FIG. 4.



Showing a front and a profile view of Waldau's largest spoon. *C* represents Critchett's vectis; *B* that of Bowman.

With regard to my own experience of this method, I may state that my first two cases proved brilliant successes. In the next I had a layer of cortical substance left behind, which took three weeks to absorb—sight good. In a very short time, however, I had two cases of panophthalmitis, and one of iridocyclitis, which caused me grief and annoyance. For it must be remembered that in a small town the bad cases are not lost in the crowd, but rise before us like so many Banquo's ghosts. I did not fare much better with Critchett's spoon. It is more easily insinuated behind the lens, but if it has a hard large nucleus, it rebounds just when one is on the point of withdrawing it, even if the wound extends to nearly one-third of the circumference. In short, I shared the experience of many others who tried it—namely, that it is one thing to catch a lens upon a spoon, but it is another to deliver it safely and entirely through a narrow outlet without damaging the internal membranes or lacerating the cornea. Thus the traction method has fallen into disrepute in Germany, and is now abandoned even by its English advocates.

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[*] Clinique Européenne, 1859, p. 59.

[†] Die Auslöffelung des Staars. Berlin.

[*] Ophthalmic Hospital Reports, 1865.

In reviewing the rise and decline of that method, it appears to me that there are two component elements in its failure which have not been noticed by ophthalmic writers. In the first place, there is the liability to the admission of air into the interior of the organ, especially when the spoon has to be repeatedly introduced. Secondly, the shock which the organ may receive, and the consequent irritation, by the sojourn of such a large foreign body in its interior. Some organisms are so delicately constituted that they resent such an intrusion even for a few seconds, apart altogether from the damage done to the eye by clumsy ferreting about in its interior. I shall make this plain by the following cases, which will show that, in some, a great amount of mischief may be done which will be quickly recovered from, whilst in others a comparatively trifling injury may be followed by the most serious consequences. On Feb. 13th, I operated on four cases of traumatic cataract in the Royal Infirmary, assisted by my friend Surgeon-major Black, in the presence of the President of the Medico-Chirurgical Society and another medical manager of the infirmary, and a large number of students, of the details of which the following is a short summary.

1. R. W——, aged fifty-nine, laborer. Thirty-six days ago, in breaking stones, a piece struck him on the eye. Iris discolored; lower segment atrophied and adhering to capsule; lens opaque, part floating in anterior chamber. Iridectomy and extraction under chloroform.

2. F. Y——, aged sixteen, stone-dresser. Fourteen days ago, when at his employment, a chip of granite struck the eye, lacerating the cornea and iris, and producing opacity of the lens. When the stone was withdrawn I was informed that the iris protruded, but subsequently receded, and it is now simply adherent to the site of the lacerated cornea. Iridectomy and extraction under chloroform.

3. G. M——, sixty-three, laborer. Thirteen days before he came under treatment he was struck with a stone from a sling. At first the anterior chamber was filled with blood, on the absorption of which the iris was found partially adhering to the capsule, lower segment tremulous, lens opaque; ciliary pain. Cured by iridectomy six weeks prior to extraction.

4. F. B——, aged twenty-six, shoemaker. About a year ago he received an injury by a blow from a ramrod, which produced laceration of the cornea extending from its centre to two lines beyond the sclerotic junction on the inner side. Partial anterior adhesion and cataract followed. Preliminary iridectomy and extraction.

In the first two cases, where there was pain and partial dislocation of the lens, I performed iridectomy and extraction under chloroform; but in the other two cases, where the lens was *in situ*, I made an iridectomy at a previous period, and extracted without the aid of chloroform. The above-named gentlemen examined the patients previous to their leaving the hospital. In none of the cases was there any pain or lachrymation six hours after the operation. After forty-eight hours I removed the dressings, and found the wound healed; the patients were then allowed to walk in the ward. Vision eight days after the operation: 1. sees features and minute objects, as little finger and ring; 2, sees ditto ditto; 3, reads No. 16 of Jaeger with 2½ cataract lenses; 4, reads No. 6 with ditto.

Here are four cases which in addition to the serious injuries inflicted, have undergone an operation of iridectomy and extraction, and are thereby relived of their suffering without much inconvenience to vision. Now contrast these with some cases of slight injury, as the thrust of a penknife or fork in the centre of the cornea, where no injury has been done to the lens, and no surgical interference has been resorted to and yet the globe shrinks. What is the cause of this disparity of result? Take another instance. A boy is brought in who has the whole contents of a squib lodged under his upper eyelid; the upper part of the cornea is singed, but he recovers vision with only slight opacity and partial symblepharon, caused by the conjunctival burn. Another boy, again, meets with a similar accident, apparently very slight—only a few particles of powder being upon the cornea; hypopion presents itself, resulting in complete disorganisation. In explaining such phenomena, we must fall back upon the admission that some organisms are so constituted that the slightest injury destroys their vitality. In experimenting on animals, we find that, whilst operations performed upon dogs and horses of the lower breeds seem scarcely to impair their appetite or derange their normal secretions—the various functions of the economy pursuing their natural course,—the same operations, when performed upon those animals of a higher breed, with an irritable, sensitive, and more highly organised nervous system, possessing qualities of a nobler kind, invariably prove fatal. Now, as every organ has, to a certain extent, its own history and life independent of the general organism, so there are idiosyncrasies of parts whereby some are more easily affected and their vitality intefered with by certain agents. Rigor caused by the introduction of a catheter into the bladder may be cited as an example of this. I submit therefore that a large corneal incision may be a great demand upon the reparative powers of nature, but the introduction of a large spoon through a narrow opening may impart a shock to the organ. The one, if gently and artistically done, leaves the parts in good condition for repair, whilst the other may produce concussion, and thus materially disturb its vitality.

*Mooren's method.*—The first alarm against Waldau's spoon operation was raised by Dr. Albert

Mooren, of Dusseldorff, in a *brochure* which he published in 1862.[*] "Of all the splendid hopes," says he, "which I had placed upon Waldau's method I have not realised one. Of thirty-two cases which I have operated on by the spoon ten eyes have been destroyed, some through inflammation of the cornea or choroid, and some through panophthalmitis." Mooren, therefore proposed another method, which is simply the ordinary flap extraction, with an iridectomy performed two or three weeks previously. From the analysis given in a previous paper of the causes of failure which attend the old operation, we cannot but regard this method as a step in the right direction. The coloboma iridis, made at a previous period, allows free issue to the cataract, and lessens, *pro tanto*, the risk. But there are still remaining those contingencies connected with the large flap.

*Jacobson's method.*—In 1863 Professor Jacobson of Königsberg, proposed a new operation,[†] the leading peculiarities of which consisted in the administration of chloroform, and in the performance of iridectomy after extraction. The following are the details:—The patient is put completely under chloroform, and kept so during the whole time; to prevent subsequent retching and vomiting he is not allowed any substantial meal for twenty-four hours previously, and no solid food for several hours before the operation. He makes a lower flap with Beer's knife, which is entered at the corneo-sclerotic junction, half a line under the horizontal meridian of the globe and the counter-puncture on the same level on the other side. The capsule is opened, and the lens is easily pressed out with Daniel's spoon or with the thumb. A large segment of the iris is then excised. If the lens cannot be pressed out, iridectomy is done first to facilitate its passage. Notwithstanding the success of this operation in Professor Jacobson's hand, (the loss being only two per cent.,) he has found no imitators. In addition to the remarks made upon Mooren's method with regard to the risks of the large flap, the following serious objections present themselves:—1. If contusion of the iris be dangerous, why contuse it first, and then excise it?—why not rather perform iridectomy at once? 2. In making a large flap, why go so far as the corneo-sclerotic junction? If a section at the vascular portion lessens the risk of suppuration and gangrene of the cornea caused by isolation, it must be remembered that this accident is comparatively rare, and hardly to be taken into account, compared with the enhanced risk of hernia of the remaining portion of the iris, which is thus left without support. 3. The administration of chloroform in flap extraction, and *a fortiori* in a flap of the nature just alluded to, is a serious venture. Who can ensure against emptying the eye by vomiting? Who can reckon upon such favorable results as Professor Jacobson met with among the Russian borderers? In reading Jacobson's paper on the use of chloroform in his operation, where he states that some of his patients took the enormous quantities of from twelve to sixteen ounces to produce anæsthesia,[‡] and bearing in mind that the napkin used is covered with wax-cloth to prevent evaporation I could not help being impressed with the conviction that he has to do with patients of a different organisation from that usually met with, and therefore that his results cannot be safely referred to as a guide for practice elsewhere.

## No. IV.

THE most important business before the International Ophthalmic Congress, at its meeting in Paris in August, 1867, was to hear and discuss reports on the results of Graefe's operation which has at present a great run on the continent. I will therefore enter into a detailed account of it. Von Graefe was induced to try "the English modification of Waldau's method, as described in my last paper, consisting in a larger opening and in an improved form of spoon, but obtained the following rather discouraging results:—Of, 118 cases—destroyed through panophthalmitis 7; nearly lost through iritis. 4; required subsequent iridectomy and capsular laceration, from 28 to 30: thus giving a decidedly less favorable result from the old operation. He consequently abandoned the spoon, and in May, 1865, commenced a new operation, which he calls "modified linear extraction."[*]

Availing himself of the advantages noted by Jacobson in his peripheral section, he proceeds as follows:—

1. The patient being in a recumbent position, and the eyelids separated by a speculum, he stands at the side of the patient when operating on the left eye, and behind him when on the right. With the forceps in the left hand, the lower part of the conjunctiva is seized at the insertion of the tendon recti-inferioris, and with the right he makes the upper section by introducing the narrow knife (Fig. 5) into the conjuctiva and sclerotic at A (Fig, 6), entering at the extreme periphery of the anterior chamber. He first directs the point of the knife downwards as if wishing to teach C; but, after penetrating about three lines in that direction, he lowers the handle so as to carry the point horizontally to reach the counter-puncture B; then he makes two or three sawing motions, to complete the section of the sclerotic. This being done, and the knife being still under the conjunctiva, he directs the edge forwards so as to cut it about two lines from the cornea. He thus obtains a section approaching to a straight line, which closes without any tendency to gaping. The dotted lines in Fig. 6 show

FIG. 5.

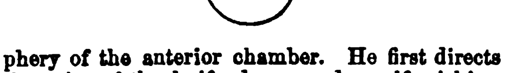
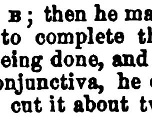


FIG. 6.



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[*] Die Verminderten Gefahren einer Hornhaut vereiterung by der Staar-extraction. Berlin

[†] Ein neues Operations-Verfahren zur Heilung des grauen Staares. Berlin.

[‡] Archiv f. O., 1865. t. i., p. 119.

[*] Archiv für Ophthalmologie, 1865, t. iii.

the direction of the knife and the extent of the incision. The object of introducing the knife first in a downward direction is to enlarge the internal opening, and so to avoid the small shelf or corner at the commencement of the wound, which is necessarily left when the knife is carried throughout in a horizontal direction, and which presents an obstacle to the passage of the lens.

2. The fixation forceps being then given to an assistant, he raises the conjunctival covering with small forceps, and, reflecting it upon the cornea, whereby the iris remains exposed, with the same forceps he seizes the prolapsed iris in the middle and excises it.

3. He takes again the forceps from the assistant into his own left hand, and, with the right, he opens the capsule by means of the cystotome.

4. When the cataract is soft, gentle pressure with the flat end of the curette upon the sclerotic lip of the wound, and counter-pressure with the fixation forceps, is generally sufficient to cause its expulsion; but when the cataract is hard, he introduces a small hook flatly behind the lens, then he turns the hook upon it and so drags it out.

In his later writings* v. Graefe improved upon this last stage of the operation. He does not trust to the *vis expellens* of the forceps; he applies the forceps about two lines towards the nasal side of the conjunctiva, so as to be out of the way, and with the back of a smooth spoon, made of caoutchouc, he first presses upon the lower margin of the cornea, and then gradually slides it upwards, whilst no counter-pressure is applied to the upper part. When the cataract is advancing, the back of the spoon is pressed more strongly upwards until it has reached the centre of the cornea, thus chasing the cataract towards and through the wound.

5. When cortical débris has remained behind, as happens in the majority of cases, he waits a a little until the aqueous humor is collected, when he makes an attempt to dislodge them towards the wound by gentle circular friction through the closed eyelids; then, opening the eyelids, the fragments are either removed by gentle sliding pressure, or, if this be insufficient, by means of a small spoon introduced into the anterior chamber.

FIG. 7.

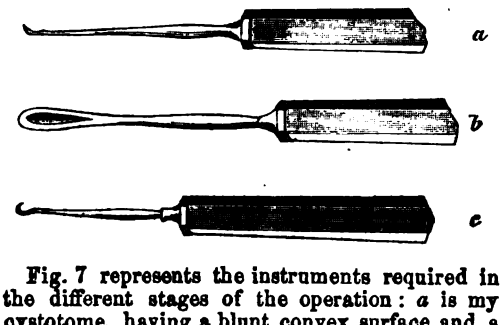

Fig. 7 represents the instruments required in the different stages of the operation: *a* is my cystotome, having a blunt convex surface and a sharp edge at his convexity: *b* is Graefe's small curette; *c* is my hook. He avoids the use of chloroform as, in general, disadvantageous, and therefore administers it only to very timid patients.

The principal accident in this operation is the loss of the vitreous. This accident may happen immediately after the section, by the incision being carried so far back that the zonula is left unsupported, and so may arch forward and burst; or by the point of the scissors touching the zonula in excising the iris; or by strong backward pressure of the cystotome upon the hard cataract; or by too firm pressure in attempting to expel the lens; or by spasm of the orbicularis; or, finally: by a pre-existing diseased condition of the zonula, caused by choroiditis with softening of the vitreous. The following are the results:—In the first 69 cases he had 62 complete successes and 7 incomplete. In 14 there was escape of the vitreous; of these only 4 numbered among the incomplete successes; thus giving a decided advantage over the spoon. At a subsequent period he lost vitreous only in 13 per cent., and more recently in only 6 per cent. In short, his present successes are so great that he expresses himself positive that this operation is to supersede the ordinary flap extraction.

The first to follow v. Graefe in this operation was Professor Knapp of Heidelberg,* with only the difference that, instead of making a straight incision, he makes it a little arched in the sclerotic, and consequently more easy for the exit of the lens. His results are: out of 100 operations he had the loss of vitreous in 25 cases, of which 11 resulted favorably; in all, he had 15 bad cases.

Foremost among the communications before the Ohthalmic Congress in August last was that of M. Otto Becker of Vienna.† It is a model of a concise and comprehensive report of 217 operations performed in the Vienna Clinique, 150 by Professor Arlt, and the rest by himself and assistants. Of these 217 cases, 117 progressed favorably, and 45 were accompanied by more or less serious accidents: thus—slight iritis, 30; irido-choroiditis, 9; hæmorrhage in anterior chamber, 4; phlegmon of the globe, 5. *Résumé:* Lost, 5½ per cent.; required secondary operation, 10 per cent.; acuity of vision particularly favorable; length of sojourn in hospital diminished by one-third; unripe cataracts could be operated on as well as ripe ones with the same chance of success.

Most of the speakers who followed seemed to regard this method as an improvement on the old operation. Notwithstanding the recommendations from such authorities, I was not induced to give it a trial, inasmuch as there is a *prima facie* case against it, tending rather to favor the conclusion arrived at by one of the speakers, M. Quaglino of Pavia‡—viz., that this operation does not lessen the risk of panophthalmia, secondary cataract, and especially loss of the vitreous. From the large number of cases which I have examined in the different cliniques of Paris and elsewhere, I am confirmed in my conviction. I have noticed in some considerable quantity of cortical substance left behind, and vision, after some weeks, either imperfect or deficient. In other cases, again, in which the wound healed well and vision was good, there were marks of cystoid union, showing that the eye had run a risk during the operation. In some cases the pupil was dragged upwards. This, I may remark, is invariably the case when lenticular substance is left behind to be absorbed.

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* Arch. f. Oph., 1867, t. ii.

* Op. cit., 1867, t. i.

† Comptes Rendu, p. 72.

‡ Op. cit., p. 85.

That Graefe's section in the sclerotic exposes too much to the risk of loss of vitreous is sufficienly apparent from the fact that Arlt, Liebreich, and Critchett have modified it by making the section terminate in the corneal substance; this, of course, lessens the outlet, and the section will have to be carried further downwards, thus approaching more to a small flap. It appears to me, therefore, that Graefe did not succeed in the attempt he proposed to himself, to steer clear of the Scylla of contusing the internal parts by pressing a hard cataract through a small incision, without falling into the Charybdis of carrying the incision so far back as to endanger the vitreous. Loss of the vitreous in itself is of no great consequence, but such an accident, when occurring before the exit of the lens, is highly embarrassing, as shown by the following quotation from Knapp's paper:—"The escape of the vitreous was epecially unfavorable when it occurred before the exit of the lens, for I was then obliged to introduce a traction instrument through the torn-up vitreous to drag out the lens. I succeeded almost in every case, but nearly always there remained behind a greater or less amount of fragments, which gave rise in one case to panophthalmia, in others to more or less violent iritis, resulting in secondary cataract or closed pupil; in other cases, again, there was very little irritation and good sight."

Since the above was written the last number of the *Annales d'Oculistique* came to hand, in which I observe a notice of an unseemly attack by Professor de Hasner,* of Prague, on von Graefe and his method of cataract extraction. I feel myself the more at liberty to express an opinion on this, inasmuch as in these papers I have freely criticised and stated my views on all the operations that have of late years been brought forward. When treating of iridectomy for the cure of glaucoma, or on the modified linear extraction, I have shown that I have not implicitly followed von Graefe's or any other man's theory or practice, but have endeavored, by careful observation, to test the practical value of each method irrespective of the authority from which it had emanated. From my remarks on Daviel's method it will be seen how highly I appreciated the old classic operation. It was only necessity that, in the first instance, led me to seek for a new operative procedure. The first case in which I did so was one traumatic cataract with closed pupil by plastic exudations, which had been declared hopeless by the father of ophthalmic surgery in this country, and to which the old flap method was certainly inapplicable. At first I restricted my method of iridectomy and extraction to those cases only where the flap operation was impracticable, and it was only gradually that I glided into it as a general method, after becoming convinced of its unquestionable superiority. While, therefore, I highly appreciate M. de Hasner's zeal for Daviel's operation, and his opposition to other methods, of which he has no experience, I must here enter my earnest protest against his novel system of polemics which he has imported into scientific discussions. Such a system of warfare will, I trust, find no admirers in this country, and is peculiarly *mal apropos* when directed against one to whom ophthalmic science owes so much. It is indeed refreshing to turn from the flippant declamation of the attack to the characteristic calm strength and dignity of von Graefe's reply which follows in the same number.

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* Die Neuste Phase der Staar-operation. Prague, 1868.

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### THE

# PATHOLOGY OF SUPPRESSION OF URINE.

### ILLUSTRATED BY TWO CASES

By William Roberts, M.D., F.R.C.P.,

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The two following cases afford illustrations of two distinct types of suppression of urine.

The first is an example of that numerous class of cases in which the suppression is due to disease of the secreting structures of the kidneys, or to disturbance of the circulation or innervation of the organs. In these there is no obstruction to the passage of urine along the ureters. Cases of this class occur in the various forms of Bright's disease, in the algide stage of cholera, and, indeed, in severe collapse from any cause.

The second is an example of a class of cases in which the kidneys themselves are free from disease, and in which the suppression is caused by a mechanical obstruction to the outflow of the urine. The obstruction may be situated in the pelvis of the kidney, or in the ureter, or possibly in some still lower part of the urinary passages. These may be called cases of *obstructive suppression*.

These two types of cases are not only pathologically distinct, but—as I shall have occasion to show presently,—In those which depend on obstructed outflow, the urine which is retained above the obstruction, or that which escapes past it, presents a notable and unexpected change of composition—a change so marked that it may serve to throw an important light on the diagnosis.

Case. 1. *Scarlatinal dropsy, without albuminuria; almost total suppression of urine for seven days; pericarditis; death.*—Clara E——, aged seven years, first seen by me with Mr. Winn on the 28th of October. The child had sickened with scarlet fever about a fortnight before. The attack was mild; and the patient entered on convalescence five days ago, and left her bed, but not her room. There was no appreciable desquamation of the cuticle. Two days ago general anasarca set in, with vomiting and purging. The urine became scanty, almost to suppression.

When I saw the child she presented the usual appearance of scarlatinal dropsy: extreme white pallor of the entire surface; moderate puffy œdema of the face, body, and extremities; the pulse was hard and jerking; the skin unperspirable; the tongue tended to dryness at the tip; and the pupils were strongly contracted. The stools were frequent, and of a dark slim character; and there was frequent vomiting. The urine was nearly altogether suppressed; only two drachms had been voided in the last twenty-four hours. It was of a deep saffron-yellow color, and of almost only consistence, as if highly concentrated. It did not contain a trace of albumen; but several fibrinous and epithelial casts were detected with the microscope. Ordered a blanket-bath, hot poultices to the loins, and diaphoretic mixture.

Oct. 30th.—the skin had acted pretty freely after the bath (which had been repeated last evening), the vomiting and purging had almost ceased, and the œdema had considerably diminished; but the tongue was still dry at the tip, the pulse was resistent, and the heart strongly agitated, but without murmurs. The pupils were contracted, and almost insensible to light. There was a tendency to somnolence and muttering; but the patient answered questions sensibly. About two ounces of urine had been passed in the previous twenty-four hours. Its specific gravity was 1020. It did not appear so concentrated as the first specimen; but had the same intense saffron-yellow color. It contained no albumen nor blood, but casts as before, with some free renal epithelium.

31st.—The œdema had nearly disappeared; the stomach was quiet; the bowels had been moved twice. Some liquid food had been taken and kept down. The skin was acting freely. On the other hand, the patient was sensibly weaker; the tongue was dry over a larger area; the heart was much agitated. About an ounce of urine had been voided since yesterday. This appeared strongly concentrated, and displayed the same intense coloration and the same composition as the preceding specimens.

Nov. 1st.—The patient was found much worse; a change took place about six o'clock last evening. The vomiting returned in severity. The night was passed in great restlessness. On examining the heart a loud pericardial friction-sound was audible all over the cardiac region. The patient was indifferent to all around. Any attempt to take food or drink was followed by immediate vomiting. The skin was perfectly dry; the tongue was becoming brown as well as dry. No urine had been passed since the last report.

This was the last time I saw the patient. She died on the following day amid continued restlessness, without coma or convulsion. About an ounce of urine was voided in the night preceding death. The body was not examined.

The whole quantity of urine passed in the five days intervening between my first visit and the time of death was four ounces and a half; and, assuming the rate of secretion as the same for the previous two days, the total volume secreted in the seven days of suppression amounted to be-between six and seven ounces. Yet the patient did not die directly from the suppression, but from pericarditis, one of the not uncommon terminations of Brights's disease.

This case presented no difficulties in the way of diagnosis. It was an example of that well-known form of acute Bright's disease which follows scarlet fever. It was only exceptional in the fact that the urine was not albuminous. This occasional peculiarity of scarlatinal dropsy has been before observed both by myself and others.

The point to which I wish to call especial attention in this history is the character of the urine —its concentrated appearance and its intense coloration.

CASE 2. *Old-standing imperviousness of right ureter, with atrophy of right kidney; symptoms of left renal calculus (one month); symptoms of passage of calculus along the left ureter (four days); impaction of calculus near the terminal orifice of the ureter, and almost complete suppression of urine (ten days); death; autopsy.*—Mr. J——, a retired slater, aged sixty-seven, a stoutish hale-looking man, was seen by me at the request of Mr. Mellor, on Nov. 6th. The patient stated that he had usually enjoyed good health, except that (being emphysematous) he had for many years been subject to bronchitic attacks, for which he had from time to time sought Mr. Mellor's aid. It appeared that for the past month he had noticed an unusual frequency in the calls to void urine; he had also suffered during the same period from occasional pains in the left loin. On the last day of October he took a walk of twelve miles, and on his return suddenly experienced an intense pain in the left loin. This pain continued in great severity for four days, and was accompanied with very frequent and scanty micturition. The urine voided at this period was not observed to contain blood. On Nov. 3rd (the pain still persisting) the urine became altogether suppressed. The patient then consulted Mr. Mellor, who ordered him an opiate draught. The pain entirely ceased a few hours after this, but the urine continued suppressed. The following day Mr. Mellor introduced a catheter, but found the bladder empty.

I first saw the patient on the night of Nov. 6th, after the urine had been totally suppressed for three days. He was then lying in bed, perfectly calm, without any pain or any desire to void urine. The appetite was good; the tongue moist and clean; pulse 80, regular; heart's sounds natural; respiration somewhat labored, but not accelerated. There was a troublesome cough, with mucous expectoration. The skin was dry. There had been no sleep for two nights. The bladder was empty. Ordered a blanket-bath, gruel enema, and alkaline saline mixture; also kneading of the left loin and course of the ureter with the aid of a liniment.

Nov. 7th.—The patient had perspired freely after the bath; he felt better; had slept some hours; and had been up and about the house. He had voided about twenty ounces of urine, which Mr. Mellor described as pale and limpid: it had been inadvertently thrown away before my arrival.

A careful examination of the abdomen was now made. No tumour or general fulness could be detected in any part; but in the renal region proper, on the left, we felt distinctly, as we believed, the rounded end of the kidney below the false ribs. The right renal region, on the contrary, was by comparison flat and empty. The diagnosis now made, with some confidence, was—absence or atrophy of the right kidney, and impaction of a calculus in the left ureter.

8th.—Pulse 80; respiration 24, more labored, accompanied with wheezing, but without subjective dyspnœa; no desire for food; some thirst; tendency to nausea, with occasionally vomiting. The patient complained for the first time of a degree of confusion in the head. The bath and the enema had been repeated without effect: ordered a phosphoric-acid mixture.

In the last twenty-four hours twelve ounces of urine had been passed. The specimen was clear and nearly colorless; specific gravity 1010; without a trace of albumen. After long standing, it deposited a few scattered corpuscles, resembling pus. On analysis by Davy's method, it was found to contain 1·92 grains of urea per fluid ounce.

9th.—Morning: Pulse 76; respiration 24, labored and noisy, as before; tongue still clean, but dry at the tip; complete anorexia; great thirst; continued restlessness and insomnia, with nausea and not infrequent vomiting. The left loin yesterday and to-day was tender on pressure. Sixteen ounces of limpid watery urine were voided in the last twenty-four hours. Its specific gravity was 1011; it was similar in appearance to the previous specimen, and contained 2·08 grains of urea per ounce.—Evening: Pulse 84; respirations as before; tongue dry at the tip. There was no delirium, but the patient complained of increasing mental confusion: he felt, he said, as if he were drunk. Thirst and nausea continue, accompanied with occasionally hiccough. The temperature in the axilla was 98·6°; the pupils were contracted, and responded sluggishly to light. Since morning six ounces of limpid urine had been voided; it was pale and watery; specific gravity 1011, exactly resembling the preceding specimens.

10th.—Afternoon: Pulse 80, slightly irregular; respiration 20, labored, long drawn, inspiration and expiration divided, accompanied with a gurgling rattle; the tongue was dry over its whole surface, and getting brown; the soft palate was also dry and brownish. The patient lay indifferent, inclined to doze, muttering, but answering sensibly, though slowly, when questioned, and soon relapsing into fitful somnolence. Frequent slight muscular twitches were now noticed, scattered over the face, trunk, and extremities. There was no vomiting; no nourishment had been taken, scarcely even an occasional teaspoonful of drink. The patient had lain thus quiet all through the night. The bowels had not been opened for two days. Ordered enema of sulphate of magnesia and gruel. Not a drop of urine had been voided in the last eighteen hours.

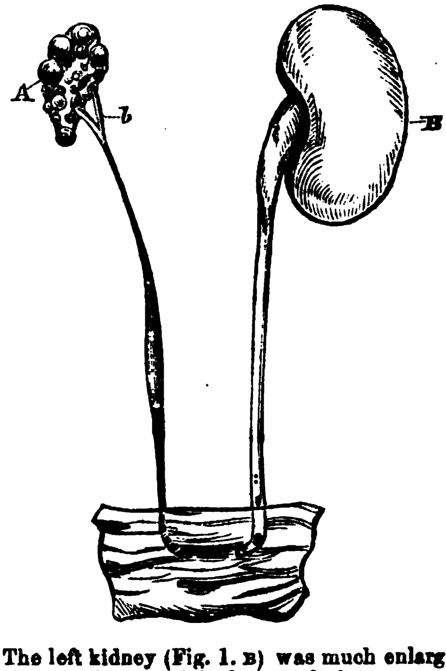
I did not see the patient alive after this. Mr. Mellor saw him twice on the 11th. Death took place at 7 A.M., on the 12th.

Mr. Mellor reports that on the 11th the pulse had fallen to 66; the respiration was very labored; the muscular twitchings had increased. The patient was drowsy, indifferent, moaning; he answered "yes" and "no" to direct questions, but slowly and, as it were unwillingly. The pupils were strongly contracted; the tongue became browner, and sordes covered the teeth. The enema came away without result. The indifference gradually deepened into coma. There was a slight and doubtful convulsive seizure before death. For sixty-one hours preceding dissolution no urine had been voided.

*Autopsy, fifty hours after death.*—Body well nourished; rigor mortis strongly marked; no trace of putrefaction, though the weather was warm for the season of the year. On opening the abdomen, the viscera were found healthy, with the exception of the urinary organs. The kidneys, ureters, and bladder were removed together in one piece.

The right kidney (Fig. 1, A) was wholly converted into a fibrous mass, studded with large and small cysts, ranging from the size of marbles to pins' heads, and containing a clear amber fluid. It weighed two ounces and a half. The ureter was impervious throughout, and converted into a solid fibrous cord, about as thick as an ordinary ureter. Somewhat below the middle it swelled out to double its general width for the space of about two inches. This thickened portion was solid like the rest. The entire cord and the kidney-remnant were invested with an abundant covering of fibro-fatty tissue, which adhered organically to their surfaces, and required the knife and scissors to dissect off. The pelvis of the kidney was pervious, but reduced to two thin branches, which united below, and ended at the commencement of the ureter in a blind cul-desac (*b*). No stone or calculus-remnant existed in any part, nor any clear indication of the mechanical cause of the imperforate condition. It was, however, conjectured that the thickened portion of the ureter had been the original seat of the obstruction; and that the stones, or whatever object had constituted the impediment, had been subsequently removed by absorption. It was quite evident that the destruction of the right kidney was of old date; and subsequent inquiries amongst the patient's friends elicited the fact that some years previously he had frequently been heard to complain of pains in his back.

Fig. 1.



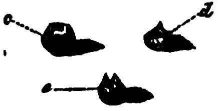
The left kidney (Fig. 1. B) was much enlarged, and weighed 10oz. It had a very dark appearance. The capsule was thin and transparent, and peeled off, without tearing, from the smooth surface of the organ, carrying with it the usual adipose investment, which was abundant. When the kidney was cut open, the exposed surface presented an intensely dark, uniform appearance, with very faint distinction of cortical from pyramidal substance. The pelvis was somewhat dilated, and distended with about two drachms of bloody, grumous urine. No free calculi were found in the pelvis or infundibula; but a small black calculus, as large as a mustard-seed, was seen projecting into one of the lower calices. It was tightly impacted in the mouth of one of the ducts of the corresponding papilla.

The left ureter was throughout about the thickness of a large goose-quill, and tightly distended with fluid. At the lower part, for an inch and a half above its entrance into the bladder, it had a reddish, congested appearance; and in its interior, at this part, three small calculi could be felt. The largest of these was tightly impacted in the terminal portion of the ureter, where it passes obliquely through the coats of the bladder. The other two lay loose in the ureter about an inch higher up, situated one above the other, and a finger-breadth apart. On pressing the ureter, and squeezing its contents from above downwards, only a very slight oozing took place into the bladder, so tightly was the lowest calculus impacted in the canal.

A small opening was made into the ureter for the purpose of withdrawing the calculi for further examination. About three drachms of a thick turbid chocolate-colored fluid escaped through the opening thus made. This fluid contained fibrinous shreds and small granular blood-clots. Under the microscope it further revealed (besides blood-discs) a number of spheroidal and dumb-bell masses of oxalate of lime. The fluid found in the pelvis of the kidney had exactly similar characters.

The little calculi (Fig. 2) were about the size of hemp-seed, of a glistening black color when wet, and changing to a dark-brown on drying. The three together weighed a grain and a half; they were composed of pure oxalte of lime, and as hard as pieces of granite. The largest of the three (which constituted the obstruction) weighed only the sixth part of a grain (*c*); it was facetted on the surface, and had an irregular ovoid shape. The next to it (*d*) was also facetted, and had a rudely pyramidal form, surmounted by a blunt spike. The topmost (*e*) was of similar shape, but with two spikes and no facets.

FIG. 2.



The bladder contained about six ounces of urine, which as it flowed from the penis during the removal of the viscus, appeared pale and dilute like the specimens passed during life. The orifice of the left was unchanged. The coats of the bladder were thin but healthy.

In this second case death was undoubtedly directly caused by uræmia—using that word in its comprehensive and more appropriate meaning, to signify accumulation in the blood of the excrementitious matters (and their products) which in health are got rid of by the kidneys. The suppression of urine continued altogether for nine and a half days. During the first three of these the suppression was complete. Then followed a period of four days, during which an aggregate quantity of 54 oz. of urine were voided. Finally in the last two and a half days of life no urine was passed, but 6 oz. were found in the bladder after death; making a total of 60 oz. of urine secreted in nine and half days.

This seems at first sight a not inconsiderable quantity, and one is disposed to wonder that the suppression being so incomplete, life was not longer maintained. But, on closer consideration, the suppression is found to be more complete than at first appeared. The urine discharged was exceedingly dilute—its specific gravity ranged from 1010 to 1011, and its proportion of urea was only about two grains per ounce,—so that the total weight of urea excreted in the nine days and a half only amounted to about 120 grains, which is less than one fourth of the normal amount of one single day.

The pathological conditions in this man, and the sequence of events which ultimately led to his death were, in the main, read clearly during life and the post-mortem examination only put the seal of certainty and precision to the diagnosis. What took place may be summed up as follows:—About a month before the patient came under observation, three small oxalate-of-lime calculi, which had been previously lying harmlessly in one of the infundibula, were dislodged, and dropped into the pelvis of the kidney. Here they sojourned some four weeks, causing pains in the left loin and frequent calls to void urine. At the end of this period they suddenly entered the ureter, and, in the course of four days, amid intense suffering, descended to its lower part. Here the foremost calculus became impacted; the pain ceased as suddenly as it began, the passage of urine was blocked up, and suppression ensued.

Had the opposite kidney and its duct been intact, no very serious consequences would have followed.

The healthy kidney would have taken on itself increased activity and increased growth, and fatal uræmia would have been averted. But the right kidney was, by an untoward but not unprecedented coincidence, practically non-existent. It had itself, as may be conjectured, encountered, many years before, a train of events similar to that which had now extinguished the activity of its fellow.

The appearance and characteristics of the urine offered a marked contrast in the two cases, and this is the point in the paper to which I am most desirous of calling attention. I am led to believe that the differences observed depended on no fortuitous circumstance, but were specially connected with the mechanism of the suppression.

In the first case the urine was concentrated and high-colored and it contained undoubted evidence (casts) of disease of the kidneys. In the second case the urine was dilute, pale, almost colorless; its proportion of urea was greatly below the normal standard, and there was no evidence of renal disease.

Of the pathological causes of the abdominal characteristics of the urine in the former case I do not propose to speak further; they belong to the general pathology of Bright's disease. But I wish to point out in a particular manner the mechanical conditions under which the urine was secreted in the second case. In order to understand the matter clearly it will be necessary to glance at the mutual relations in health of the blood circulating in the renal vessels, and the urine newly secreted from it and flowing down the uriniferous canals. In the normal state the limiting membrane intervening between the blood circulating in the Malpighian tufts and around the convoluted tubes on the one hand, and the fluid contents of the uriniferous canals on the other, is subject on the side of the blood to a considerable pressure—namely, the lateral pressure within the arterial system, while on the other side there is no counter-pressure at all, so long as the escape of urine is free.

This difference, as was at first suggested by Ludwig, and afterwards proved experimentally by Hermann,[*] is a capital factor in the rate, and even in the existence, of the urinary secretion. Hermann found that when the pressure within the renal vessels was lowered the flow of urine was diminished in proportion. He tested this point in two ways. In the first set of experiments he lowered the blood-pressure in the kidney by contracting (by a clamp) the calibre of the renal artery. In the second set he created a counter-pressure in the uriniferous canals by impeding the flow of urine by means of a column of mercury communicating with the ureter. By this latter method he exactly imitated the condition existing when the ureter is blocked up by some mechanical obstruction. Hermann found that a pressure in the ureter of 10 millimetres of mercury (0·4 inch) caused a sensible diminution in the flow of urine—this diminution went on increasing up to a pressure of 50 millmetres,—and with a pressure of 60 millimetres of mercury (2·4 inches) the secretion of urine was altogether arrested. In these experiments the specific gravity and coloration of the urine are not alluded to, but it was uniformly found that the percentage of urea progressively diminished as the pressure in the ureter increased.

Basing our deductions on the characteristics of the urine in my second case, and fortified by the experimental results obtained by Hermann, we may assume that a mechanical obstruction in the ureter will inevitably produce the following series of events:—As soon as the obstruction is established the urine begins to accumulate above it; the accumulated urine stagnates and causes pressure, first in the ureter, then in the pelvis of the kidney, and lastly, in the uriniferous tubes. As the urine goes on accumulating, the pressure within these channels necessarily increases, until at length the pressure so created is sufficiently great in the uriniferous canals to counterpoise the pressure within the renal bloodvessels. When this point is reached the secretion of urine is arrested, and total suppression ensues. If again, the obstruction be not altogether complete, and there be room for some urine to escape beside it, the urine so escaping will have been secreted under a high pressure within the uriniferous canals, and its constitution will be found materially altered; it will be very pale, watery, devoid of its proper coloring matter, poor in urea, and of low specific gravity. It may be, and indeed not unfrequently is, tinged with blood, but this is an accidental circumstance.

My attention to the changed character of the urine in obstructive suppression was not directed for the first time by the case of Mr. J—— just related. A suspicion of something of the kind was awakened in watching a previous case, which fell under my observation about a twelvemonth ago. It was that of a young gentleman who died of suppression of urine occasioned by a double hydronephrosis. In this case a congenital malformation existed, which in the course of years, produced a standing impediment to the outflow of urine, and (as a more remote consequence) sacculation of the kidneys. The urine during the attack of final suppression which put an end to life was several times obtained for examination, and it had much to my surprise, only a specific gravity of 1008 and 1010; it was exceedingly pale when free from blood, and contained no casts, nor other signs of the ordinary forms of renal disease.

The cases of obstructive suppression hitherto recorded do not furnish much information on the state of the urine, though in most of them some urine was passed during the progress of the case. In three instances, however, some information is given, and this, so far as it goes, tallies with the description of the urine in my case. In the first which is recorded by Rayer, urine was voided on three occasions, and each time it was "clear, colorless, and almost devoid of saline ingredients."[*] In the second case half a pint of "limpid" urine is reported to have been passed on one occasion.[†] In the third case several specimens of urine were obtained, and are described as "pale" or "very pale."[‡]

The change which occurs in the composition of the urine when the ureter is obstructed occurs probably also in some degree when the urethra is obstructed, and the condition termed *retention* is produced. The great distensibility of the bladder postpones for a time the stagnation of urine in the ureters; but eventually the accumulation must extend to the channels above the bladder, and the pressure of the dammed-up stream must at length be propagated upwards to the pelvis of the kidney, and, finally, into the uriniferous tubes; so that more or less *suppression* of urine must ultimately be added to the *retention*. Indeed it is self-evident that retention will of necessity, if it continue sufficiently long, end in suppression. I have, however, searched in vain through surgical works for any accurate description of the urine in cases of protracted retention.

There are some further points of interest arising out of Mr. J——'s case to which I may be permitted briefly to advert.

1. The ureter and pelvis of the kidney are (unlike the bladder) incapable of rapid dilatation. In the case which has just been described the dilatation scarcely amounted to a doubling of the size of the ureter and pelvis. Those examples of monstrously enlarged ureter and pelvis (sacculated kidney or hydronephrosis) are produced by slow degrees, and must be regarded as a growth rather than a dilatation. And this consideration enables us to explain why two totally different results may follow one and the same cause—namely, obstruction in the ureter. When the obstruction is suddenly established and is at once complete, the consequence is, supposing the opposite kidney to be sound, not enlargement and sacculation, but atrophy of the kidney and permanent closure of the ureter. When, on the other hand, the obstruction is slowly established and incomplete, it produces hypertrophic dilatation of the ureter and pelvis, and eventually sacculation of the kidney or hydronephrosis.

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[*] Henle and Pfeufer's Zeitschrift, 1862, p. 1.

[*] Malad. des Reins, i., 403.

[†] Bagshaw, Path. Soc. Trans. xvi. 177.

[‡] Fuller, ibid, xiv., 193.

2. The temperature of the body does not appear to be raised in uræmic poisoning. There exists a condition which resembles fever, and indeed is generally described as such, but which differs essentially from genuine pyrexia in not being accompanied by increased bodily heat. In my second case the temperature in the axilla on the evening of the seventh day of suppression when the tongue was dry and the thirst great, was only 98·6°, which is within the normal limits. At this time there existed manifest symptoms of uræmic poisoning—namely, nausea, hiccough, mental confusion, and contracted pupils. In a case of chronic Bright's disease, with protracted partial suppression of urine, recently under my care at the Royal Infirmary, this point came out even more strikingly. For more than a fortnight before death the urine had been very scanty—nine to twelve ounces in the twenty-four hours,—with a specific gravity of only 1018–20. The tongue and mouth were invariably dry; there was indifference, fitful somnolence, and contracted pupils. The temperature in the axilla, taken almost daily during this period, ranged from 94·5° to 96·5°. An erythematous inflammation of the œdematous integuments of the legs arose, but it did not produce any elevation of the temperature; and, still more strange, a pericardial inflammation involving the whole cardiac surface, which set in two days before death, did not cause the least rise of temperature. The thermometer still registered 95°.

3. In the notes of the autopsy of my second case, it is stated that about five drachms of a thick grumous, bloody fluid were found in the pelvis and ureter of the left kidney. The blood, on closer examination, appeared chiefly in the form of small, granular, friable masses of almost black color. The colorless urine which was voided during life must have filtered through this column of bloody fluid, and yet no blood-color had been communicated to it. How to explain this apparently contradictory occurrence I do not exactly know, but I have observed the same before in more than one instance. Under certain conditions (perhaps a disproportionate percentage of saline ingredients) the urine may contain blood, and yet be uncolored by it, or, at least, receive only a pale-yellowish, faded-leaf tint. In some such instances the blood forms a distinct vermillion-red layer of corpuscles at the bottom of the vessel; in other cases, the blood (as in the case here described) is in the form of dark chocolate-colored friable granular masses, which sink to the bottom of the vessel, and look like settlings of beef-tea, or as if a pinch of rappee snuff had been dropped into the urine. This latter appearance I noticed in a case of rupture of the kidney from a fall; also in a case in which there existed numerous small calculi in the pelvis of the kidney, and in the case of double hydronephrosis already alluded to.

*Supplement.*—While this paper was awaiting publication, another remarkable and interesting case of obstructive suppression came under my observation. It was pathologically, the exact counterpart of the case of Mr. J——; it was diagnosticated with precision during life, and was carefully followed to the final termination and the autopsy. The details of this case—which substantiate fully the generalisations ventured on in this paper,—together with some remarks on the mode of death in obstructive suppression, will form the subject of a supplement or continuation to the present communication.

*(To be continued.)*

# THE INOCULATION OF TUBERCLE IN ITS RELATION TO CLINICAL EXPERIENCE.

By Samuel Wilks, M.D. Lond.,

Physician to Guy's Hospital.

The subject of the inoculation of tubercle, originated by Villemin and other foreign experimenters, and which is now undergoing a rigid examination at the hands of such excellent observers as Mr. Simon, Dr. Andrew Clark, Dr. Sanderson, and Dr. Wilson Fox, must be treated entirely on its own merits, and should in no way be prejudiced by the introduction into it of extraneous matter. The investigations by these gentlemen may serve as models for the manner in which such inquiries should be undertaken, and we may hope that they may be pushed still further until some definite conclusion is arrived at. It is quite impossible, however, to prevent the medical mind from speculating at once upon their nature, and making those applications of the facts which these at present seem to warrant. Thus already the announcement of the inoculability of tubercle has been sufficient to induce some in the profession to assert their belief in the accidental character of the disease known as consumption. For my own part, I think the facts are at present too crude to allow of any deductions which can be applicable to the elucidation of the question of tuberculosis in the human subject; much less can they be taken as exemplifying a universal law of the propagation of tubercle in the animal kingdom. Since, however, there are those who have accepted the results already obtained as affording an explanation of the ravages of tuberculous disease in mankind, I will briefly state that at present our clinical experience presents most formidable objections to the reception of the new doctrine.

The first announcement, it may be remembered, was simply that tubercle could be inoculated. This being apparently subversive of the common opinion that tuberculosis was a constitutional disease, the further declaration that the same results were attainable by the use of many animal substances was received with much satisfaction, for it tended to the conclusion that the effect produced of the nature of pyæmia. Subsequently, however, the elaborate researches of Dr. Wilson Fox and others proved that the new formations are real growths of cell composition, and that truly they can be produced by the inoculation of a variety of substances into the system. The latter, however, are more or less allied, being what are styled homologous elements—that is, cell formations, the result of inflammatory processes in different tissues of the body. I am not aware that any material supposed to contain any specific elements in its constitution has been found equally effective. Both Dr. Sanderson and Dr. Wilson Fox, I believe, in contemplating their experiments, see no difficulty in regarding all these new growths, which they have been instrumental in making, as identical in composition, and thus give to them the apellation of tubercle; and they then, moreover, naturally divert to the domain of human pathology, and inquire whether we have not been too stringent in the definition of this deposit, and been making distinctions where none existed; whether, indeed, the crude or cheesy deposits so constantly found in the human subject should not at all be regarded as tubercle.

There need be no fear of such cautious as well as intelligent observers rushing into theoretical speculations whose truth their experience might not confirm; but yet there are those persons who would at once draw an inference to the effect that all the amorphous and caseous deposits found in the human body deserve the name of tubercle, and that they may originate as it were by accident. Of course there is no difficulty in so widespread form of disease for some persons, with whom I have conversed on the subject, to bring forward instances of phthisis succeeding to a chronic synovitis, an abscess in the testis, or a fistula in ano, to say nothing of the many examples of a husband soon following a wife to the grave, or a sister the brother, in confirmation of the opinion that the seeds of tubercle may be carried by the breath. Now, although it is no difficult task to select instances of this nature which may tend to corroborate such a doctrine as that just mentioned, yet we must look up our whole clinical experience in order to discover how far it can be applied; and in doing so I cannot but think that this will be found quite out of harmony with the teaching which the experiments might seem to warrant. The subject is a very large one, and cannot be treated in a few words; it involves the whole question of what is understood by tubercle, what is meant by local and constitutional disease, and how the term phthisis is understood by the profession.

If it should be said that the material which is found in a dried-up abscess or lymphatic gland which has been the subject of inflammation is the same material as that discovered in the body in a case of consumption, I would answer, that although the naked eye may not perceive a distinction, yet they are to all intents and purposes different. It might, however, be said again that this is assuming the very point to be determined, which is, whether any material accidentally produced on the surface, as from injury, may not be propagated through the system in a form which is usually styled tuberculous, and which all admit tends only to one event. I would say a second time that this is the arena for the combat of the rival doctrines, and that clinical observation is altogether opposed to the idea of the spread of tubercle in this accidental manner; in fact, I myself know of no form of disease to which the doctrine apparently arising from the experiments mentioned would less apply than that of tuberculosis; it would much more fit the facts observed concerning the growth of cancer.

The question concerning the local and constitutional nature of any disease is as old, as it is important. The tendency of all clinical experience has been to favor the constitutional rather than the accidental cause of disease; whilst pure pathology has had much to advance on the other side. Thus I have on various occasions attempted to show that particular tissues of the body are liable to special changes, whilst they are at the same time insusceptible to others; that, for example, it is not true, as was once supposed, that a cancer, a tubercle, or an abscess can spring up *de novo* in any part of the body. I believe that a cancer or an abscess in the lung is one of the rarest possible occurrences as an idiopathic affection, and that almost invariably it may be shown that the seeds of the disease have been brought from a distant part. In the case of cancer, although one cannot deny the hereditary disposition to the disease, yet my own observations, like those of Mr. Moore, tend to prove its frequent local origin. Indeed, the example of osteoid cancer, originating in bone, and melanotic cancer, often having its source on a pigmental mole, is sufficient to show how local characters of a disease are propagated. I might also mention the occasional case of epithelial elements being discovered in solid organs which neighbor on an epithelial growth. When, therefore, it is said that abnormal deposits on the surface tend to the formation of similar deposits in the interior of the body, we have clinical experience of the fact. Even if cancer, in its various compound forms, had been inoculated in animals. I believe we could have advanced nothing in human pathology in opposition to the experiments. If a local formation of a peculiar character is succeeded by similar formations in the organs of the body, whether these are composed of nuclei or cells of cancer—the cells of pus, bone-tissue, or pigment,—we are not surprised at those ill-formed cell structures which are found in inflamed products being succeeded by like growths in the interior of the body, if the former be inoculated. This has yet to be proved as occurring with frequency in the human body, although I think it possible, as one or two remarkable instances coming under my own notice have shown, in which the question arose between a pyæmic process or a case of multiple growths. But, admitting these facts, what concerns us here is the question whether these inoculable deposits are deserving of the name "tubercle." My own opinion is that they are not; indeed, I confess to the fact that all my teaching of late years has been towards the overthrow of the opinion that all low-organized or caseous deposits are to be regarded as tuberculous, seeing that they arise under such a variety of circumstances, which preclude their having anything in common.

The most important objection against the inoculability of tubercle and the accidental nature of tuberculosis being allowed a status in the human subject is, that there is very little evidence clinically of tubercle having any origin which would corroborate such views: whilst, on the other hand, in the majority of instances it apparently springs up spontaneously. Indeed, if there is any one fact in medicine which has a firm foundation it is the hereditary disposition to consumption. It is indeed so certain, that if the inoculability of tubercle in the human subject were proved, it would be equivalent to the fact of small-pox being a specific disease, and yet only capable of attacking certain individuals—a fact which would practically be changing its nature from a specific to a constitutional affection. I think the hereditary tendency to disease is one of the most important facts for the consideration of medical men, and in no case more so than that of tuberculosis. The type of the tuberculous subject is so well marked that the young man or maiden possessing it may be picked out long before any manifestation of disease has displayed itself. All the members of a family may be seen to fall into the grave one after another, whilst the same circumstances which surrounded them have no influence on those who may be dwelling in the adjoining mansion. Of all the practical objections against the idea of the accidental propagation of tubercle, this is the most important. It is one which, to my mind, entirely precludes the idea of consumption, in the large majority of instances, having any such origin; and, as regards treatment, the recognition of the diathesis, or the inclination towards consumption, is, I consider, more important than any amount of knowledge respecting the actual existence of the disease in the body. This hereditary tendency appears to me so fully ascertained, that even if the inoculability of tubercle were proved to be possible in the human subject, I believe it would bear very little on the actual production of the disease as at present seen in consumptive persons.

Moreover, the devolopment of tubercle in the body does not follow the same rule as do those forms of deposit which are propagated from without—as, for instance, in pyæmia or cancer, which, commencing on the surface, subsequently involve the lungs and other parts. In both these forms of disease there is frequently a history of an injury; and in the case of cancer, when situated externally, the surgeon does not hesitate to remove it for fear of similar disease within, for this he knows occurs at a later period. But how rarely does tuberculosis possess a history of this kind. In infants the brain is more susceptible to the development of tubercle; in children, the abdomen; in adults, the lungs. In fatal phthisis there is found, in the majority of instances, tubercles in the lungs and the intestines; but nowhere else. These examples prove, I believe, that there are especial circumstances within the body which determine the location of the disease, the peculiarities of which are not readily unaccounted for on the supposition of the introduction of tubercle without. Then there is the negative fact that no such cause as this is apparent in the majority of cases; and also the other negative fact, that local disease may remain for years without the body generally being implicated in it. A suppurating lymphatic gland or an abscess in the testis may exist for years without being followed by any absorption of inflammatory material; and certainly the cases of diseased joints which are not attended by phthisis form a majority over those where the two diseases are associated. Surgeons have been hitherto remiss in not offering to the profession fuller statistics as to the frequency of the association of the two. Everyone must have seen an apparent phthisis arrested by removal of a limb, as well as many cases where phthisis has succeeded to the operation. Then, again, I might mention such a purely local disease as that found in morbus Addisonii, and where the material in the suprarenal capsule appears identical with that of tuberculous matter—a disease so local as to preclude its constitutional origin, at the same time not admitting the application of a newer doctrine. The cases of phthisis in connexion with fistula in ano should be more closely watched, in order to make the discovery, if possible, that he pulmonary disease has succeeded to an abscess in the rectum which has been set up purely by accidental circumstances. One cannot but think that, if a chronic inflammatory process on the surface of the body was liable to produce a general disease through the organs, the fact would have been long ago observed, and that a disease like phthisis would have been as much connected with surgical operations as the acuter affection pyæmia now is.

The different circumstances under which deposits very much alike in their character may occur in the body would show that they can have very little in common which can be of any value in a pathological or therapeutical point of view. Supposing that, owing to the absorption of some material, a disease was set up in the lungs which in ordinary parlance was styled phthisis; and supposing that a syphilitic or diabetic patient had a low form of pneumonia in which caseous matter was formed, and a similar disorganisation followed, such cases would have very little resemblance except in their final stages; for all practical purposes they would be different. The first and most important objections, then, against a disease like phthisis being produced from without, and therefore liable to be set up by accidental causes, are, the well-known facts of its hereditary nature, and the absence in the majority of cases of any such exciting causes as are indicated; and, on the contrary, the negative fact of the thousands of patients who might be found daily with external wounds, without any implication of internal parts. Then as regards the mode in which tubercle attacks the human body, which is so unlike disease which has been introduced after the manner of pyæmia or secondary growths. I would, however, allow that there may be varieties of the so-called tuberculous disease, as well as different modes of propagation, for everyone of any experience must have observed how, in some cases of scrofulous or tuberculous disease, very different tissues are attacked. Thus, in one case the whole of the solid organs are found stuffed with tubercles; in another case these are quite free, but the serous membranes are covered with the deposits; whilst in a third the lymphatic glands are the parts involved. I am here reminded that the production of tubercle resulting from the inoculation in animals would tend to subvert the opinion which holds to the difference between the scrofulous and the tuberculous diatheses, an opinion which I strongly maintain.

The question, by way of illustration, might be put thus: What is there in common between a case of ordinary consumption, one of morbus Addisonii, and one of chronic pulmonary disease succeeding to diabetes or syphilis? In all of these a cheesy matter may be found in some organ of the body, to which the name "scrofulous" or "tuberculous" is usually given. Is this a link sufficiently important to bind them by a common name?—or are not consumption, diabetes, syphilis, and morbus Addisonii, constitutionally, pathologically, and therapeutically distinct?

The subject thus briefly referred to is one of very great importance, and the discussion upon it might be protracted to any length; and therefore I will only say, in conclusion, that these remarks are not intended to throw any doubt upon the experiments performed by the distinguished observers before named—for no one has felt more interest in those experiments than myself,—but they are rather intended for such persons who pass through a medical life without having obtained any fixed opinions respecting the nature and treatment of disease, and who are ready to exclaim, on the publication of any novel theory or experiment, that the whole of one's former experience is to be subverted. The experimenters themselves have not yet applied their observations to human disease, although others may have done so for them. I trust that they will continue their observations, since the results already obtained open up a large field of inquiry, and in fact, from many points of view, have reference to some of the most important questions in pathology.

St. Thomas'-street, S.E., May, 1868.

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# NOTES ON THE EXACT SHAPE AND MOVEMENTS OF THE RIBS.

By S. M. Bradley,

Demonstrator of Anatomy to the Royal School of Medicine, Manchester.

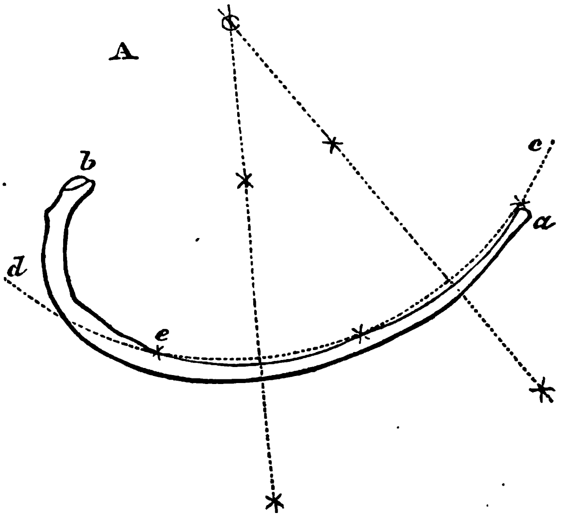
The phenomena of respiration have been investigated and described by careful observers for a goodly number of years, and it would be strange indeed if these diligent reapers in the field of knowledge had left aught of cardinal importance or deep interest for the anatomist of to-day to cull. Still there are two or three stray gleanings—minor points, that have not been alluded to or sufficiently insisted on, which appear to me worthy of note. Briefly, these are—1. The character of the costo-vertebral joint. 2. The exact shape of the ribs. 3. The movements of the ribs.

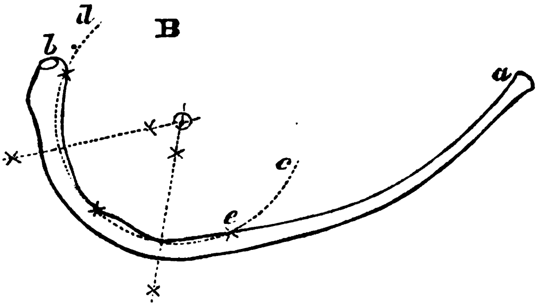
*The costo-vertebral joint.*—This is a joint which, in mechanics, is termed a pivot joint. Its chief peculiarity is, that there is less friction than in any other kind of joint whatsoever—so little is there, indeed, that by engineers it is not considered to exist at all; and such a joint will continue to work for years without any lubricating material, while a ball-and-socket joint without abundance of oil becomes solidly soldered together. This saving of fuel, this admirable arrangement of forces, is typical of the beautiful economy of nature. Respiration and circulation are the only ministers of life that know no rest from the cradle to the grave, and yet they know no fatigue.

*The exact shape of the ribs.*—What I have to say on this head is more in the way of confirmation than innovation. The ribs are described as being the segments of a circle, or as, by some (Humphry, Cruveilheir, &c.), the segments of two circles of unequal radius. In point of fact, this latter statement is almost absolutely correct, though if, as I believe, accurate drawings of the curves have never been made, it is difficult to understand how this conclusion can be anything more than a happy guess. If an unbiased person take up a rib from the middle of the series and carefully look at it, or even make a tracing of its curves, he will almost inevitably conclude that it is made up of the segments of two different figures—that from the head to the angle the rib describes the segment of a circle, and from the angle to the tip the segment of an ellipse. Feeling desirous of ascertaining whether this was really the truth or not, I had accurate drawings made of a great number of ribs, and the character of the curves obtained with mathematical precision. The result I now state. The ribs were all drawn in two positions—first, with the portion between the head and the angle touching the paper; and second, with the portion between the angle and the tip resting on the plane surface. The two that I select for illustration show the sixth and seventh ribs in the two positions mentioned. The curves are not notably nearer to true circles than most of the other ribs; in one or two cases, indeed, they were perfectly true. In no rib is there any portion of an ellipse or hyperbola, or any other figure than a circle; and in all the ribs two circles are found to contribute to their formation.

There are certain interesting differences between each rib in point of strength &c. Thus the first is incomparably the strongest, while next follow in order the second, eleventh, and twelfth; each of these presents its greatest section in the direction in which force is most likely to be applied.

It is often stated that the reason why the ribs most frequently give way at their angles is owing to the fact of the two curves meeting here. But this is not correct; for when two curves unite at such an obtuse angle as these do, no weakness results. The real cause of the fracture occurring here is that the anterior curve is so much larger than the posterior, and therefore the curve *b e*, like a slender stem, is somewhat too weak to support the heavy curve *e a*.





*The movements of the ribs.*—The movements are thus described. The most movable ribs (those from the fourth to the eighth inclusive) move in two directions, laterally and antero-posteriorly, each movement being the arc of a circle. The tip of the rib, it is said, is first raised towards a level with the head, thus expanding the antero-posterior diameter of the chest; and then the body of the rib is raised to a level with the two extremities, thus expanding the lateral diameter of the chest. But instead of these movements being sequential as thus described, they are contemporaneous; and as the tip is a moving and not a fixed point, it necessarily follows that, in addition to the circular movements just described, there is a double eccentric movement, one directly upwards and the other directly forwards. These eccentric movements differ, of course, in different individuals, being most considerable in the weak, least distinct in the robust and strong-chested; but in all they do exist to a greater or less extent, and appear to me to give a smoothness and a gracefulness to the movements of the chest, which would otherwise be somewhat staccato and abrupt.

Manchester, May, 1868.

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## ON AN EPIDEMIC OF TYPHOID FEVER.

By Robert Perry, M.D.,

Physician to the Glasgow Royal Infirmary.

During the early part of the month of March, 1868, five males were sent into the fever department of the Glasgow Royal Infirmary, under my charge, from the works of the Garnkirk Fire Clay Company. All of them were laboring under enteric fever, and as the investigations which I was enabled to institute respecting them have a direct bearing upon the etiology of typhoid fever, it has occurred to me that a short account of the facts ascertained will not prove uninteresting to my professional brethern.

Since last autumn, enteric fever has been prevalent in Glasgow to an extent rather above the average of what has existed for a few years past, and a reference to the streets from which patients have been sent to the hospital.

It is not within my province to interfere with the sanitary arrangements for the city of Glasgow, but when a number of cases of fever, all of the same type, were sent to the hospital from the works before mentioned, I thought it my duty to communicate with the manager of the works, and to direct his attention to the fact that an epidemic had broken out amongst his *employès* of a disease which in all probability could be put a stop to, if the immediate cause of its propagation were discovered, and, if possible, removed. The manager at once requested me to visit the works and cottages of the Company, and to make an inspection of their sanitary condition, in conjunction with Mr. Murray, who is the regular medical officer employed by the company. I did so; and having, as I believe, discovered the immediate cause of the fever, I recommended certain measures for its suppression, which it is unnecessary to detail, and upon the adoption of which the outbreak of enteric fever speedily subsided.

In large towns it is in almost every instance a very difficult matter to trace out the origin or mode of propagation of cases of enteric fever, and it has rarely occurred to me to arrive at any satisfactory conclusion from such investigations. I therefore gladly availed myself of what I considered a very favorable opportunity, as, from the circumscribed nature of the Garnkirk works, I felt confident it might lead me to some interesting conclusions.

I may here state, for the information of those who are unacquainted with the situation and surroundings of the Garnkirk Fire-Clay Works, that they are situated at about six miles from Glasgow, immediately on the line of the Caledonian Railway, from which a line of rails enters the works for the purposes connected with the manufacture of the fire-clay bricks, tiles, and many other articles, which are noted over the whole globe for their superior quality. Directly adjoining the works, and on ground rising somewhat towards the north and west, are a number of cottages inhabited by the work-people and their families. The entire population of the surrounding houses may be roughly estimated at between 600 and 700. Beyond the workmen's cottages, and extending on every side, is an undrained moss, beneath the surface of which the famous fire-clay is found. With the exception of one or two small farm-houses and some pitmen's cottages, there are no other dwelling-houses within nearly a mile of the works. On the north side of the kilns and workshops, and surrounded almost on three sides by the cottages, is a large pond or reservoir of water for the use of the works and workpeople. This reservoir is supplied with water from an adjoining clay-pit, the shaft of which is situated about 500 yards distant. The water is pumped out of the pit, and conveyed to the reservoir through fire-clay pipes, which are embedded only to a very slight depth in the ground. The number of men at work in the pit at the date of my inquiry was about fifty, and at that particular time the number was much less than the average of those who usually found employment there. I ascertained that there were no privies in the pit, and that the pitmen were in the habit of passing their evacuations, when necessary, at any convenient part of the workings. From the clayey nature of the floor of the pit, it can readily be understood that little or no absorption takes place, and the whole drainage of the pit gravitates to the bottom of the shaft, whence it is pumped up, and the water so collected passes through the before-mentioned pipes to the reservoir. The greater part of the surface drainage from the ground surrounding the cottages, as well as the sewage and waste water from the houses, is intercepted before reaching the reservoir, and carried off by open surface drains running parallel with it, and those open drains are regularly swept and kept clean. At the end of the pond, however, at which the water supply-pipe is led in, I observed a considerable quantity of sewage and surface drainage finding their way into the reservior. From this fact, and judging from the general appearance of the water in the reservior, there could be no doubt of of its being largely contaminated with sewage and putretying matter; but, on the other hand, there is no proof that the water taken directly out of the reservoir is ever employed for drinking or cooking. At the back and side of the row of cottages, immediately adjoining where the conducting pipe passed, I observed that the ground was thickly studded with human excrement, and refuse thrown out from the houses, the privies and dungsteads being somewhat deficient there. Workmen were, however, engaged in preparation for building them, and I understand that the deficiency has since been supplied.

In addition to other measures recommended, I advised that the joints of the conducting pipe in the neighborhood of the cottages should all be carefully examined and made secure. I have since been informed that when this was done, one of the fire-clay pipes at this particular part was found to be broken, and, moreover, that the surface water from the ground to which I have just referred was seen to flow into the broken pipe.

Here, then, was a clear proof of the impure and unwholesome state of the water passing through the pipe; and as all the water for domestic use was drawn from this pipe as it falls into the reservoir, seeing there is no other source of supply, we need feel no surprise at the outbreak of enteric fever which took place amongst those who made daily use of it. I regret that I have not been enabled to make out the exact amount of impurities in either the pit or reservior water by an accurate chemical analysis. I requested a specimen of the water to be sent to me for the purpose of analysing it; but my request was not complied with.

Throughout the cottages adjoining the works there had occurred during the past month, and up to the date of my visit, about forty-five cases of enteric fever (without being strictly accurate as to numbers). A few of the cases had been removed to the Glasgow Royal Infirmary; but the majority were under treatment in their own homes. There was also one patient suffering from enteric fever in a cottage on the opposite side of the railway, and situated only a short distance from the works; and it is an interesting fact to note that the inmates of this cottage derived all their water-supply from the same source as the people in the works.

Mr. Murray also mentioned to me that he had at that time one patient suffering under the same fever in the village of Chryston, which is nearly two miles from Garnkirk; but that up to the time of his seizure he was employed in the fire-clay works. I was not able to hear of any cases of the disease among the workmen of the same company who resided at a place called Crowrow, less than half a mile distant from Garnkirk, but which is supplied with water from a different source.

It is worthy of remark, that the proprietors of the works have for years been in the habit of furnishing, gratis, a filter for the use of the inmates of each cottage. Only a few, however, of the householders availed themselves of this offer; and it is somewhat remarkable that I did not find a single case of fever in any of the houses where the water was regularly filtered before being used for drinking or culinary purposes. Mr. Murray subsequently informed me that one or two cases did occur among those who used the filters; but that the proportion of those attacked in the houses where filters were in use was very much smaller than among those who used the water unfiltered.

Very shortly after the adoption of the measures recommended for the prevention of the contamination of the water, a marked diminution in the number of individuals attacked was observed to take place. In about a month after, the fever was almost eradicated, there being only five or six cases, and those of a much milder type, and principally confined to children. There were in all above sixty individuals attacked, and amongst these the proportion of fatal cases was very small. At the commencement of the epidemic the type of the fever was somewhat indefinite. Bronchial symptoms were more prominent than enteric symptoms, and several of the patients were sent into the general medical wards of the Glasgow Royal Infirmary as cases of bronchitis. In a short time, however, the abdominal symptoms became more decided, and the characteristic diarrhœa, which was altogether absent in many of the earlier cases, soon assumed a very severe form.

I endeavored to trace out the history of the first case of enteric fever that had occurred at the works, and likewise if any connexion could be discovered between the first and the succeeding ones. A rumor was mentioned to me of two men having recently come to the works who were at the time suffering from, or were immediately after attacked by, the fever. On strict inquiry, however, I was not able to find any foundation for this rumor.

Whether the germs of the disease were introduced from without, or originated *de novo* in some of the individuals who were using the water contaminated as I have pointed out, is not in this instance able to be proved beyond doubt. It is certain, however, that the very first case occurred in one of the cottages in the row immediately adjoining where the pipe conducting the water passed, and where I before mentioned that the privies and dungsteads were deficient.

If, as is more than probable, the intestinal discharges from this first case found their way into the pipe, the propagation of the fever by this means was most certain; and if the manager had not promptly carried out the recommendations for the suppression of this and the other likely sources of its propagation, there is little doubt that the consequences would have been much more disastrous.

Glasgow, May, 5th, 1868.

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## REMARKS ON NIGHT-BLINDNESS;

### WITH NOTES OF A CASE

By Charles H. Robinson, M.D., M.R.C.S.I.,

Demonstrator of Anatomy to the Ledwich School of Medicine, late Medical Officer to the Peninsular and Oriental Steam Navigation Company, Etc.

This curious affection has been called by the different names of Nyctalopia, Hemeralopia, Moon-blindness, Nocturnal Amaurosis, and Night-blindness; the latter appellation I consider most appropriate for many reasons.

In this disease the patient can see perfectly during the day; but when sunset occurs he loses his sight: objects then appear as if seen through a mist, a lighted candle like a spark of fire surrounded by a fog, &c. Night after night the blindness returns, and becomes more complete, until at last all is darkness from twilight to sunrise.

The *cause* generally arises from over-exposure to a strong light, giving rise to an exhausted condition of the retina. It has occurred as an *epidemic*; for instance, in the account quoted from the *Medicinische Zeitung* by the *Dublin Journal of Medical Science* vol. viii., in which 138 soldiers of the Prussian army were attacked with this disease in 1834 whilst quartered at Ehrenbreitstein and Pfaffendorf. Surg-Major Hubner investigated this epidemic, and attributed it principally to the great heat of the weather, and to the frequency of their exercises and parades on an unshaded and dazzling sandy soil, where they were also exposed to the reflection of the sun's rays from the surface of the Rhine. In four weeks they all recovered. In some parts of Hungary it is said to be *endemic*. In the case given below the patient attributed it to sleeping on deck in the moonlight, his head being uncovered.

Professor Trousseau, in his "Clinical Medicine," says: "Hemeralopia often occurs epidemically in large barracks or on board ships independently of any change in the hygienic circumstances of the individuals, and unattended with abnormal apearances in the eyes that are affected. It gets well almost spontaneously, disappearing in the same way it came on, and leaving us as much in the dark as to the cause which produced it as to its anatomical constitution."

This disease is extremely rare in Great Britain. Wardrop[*] states he has never seen a case of it here; and Samuel Cooper, in talking of cases of it, says,[†] "In this climate they are rare, and where they do occur are only relapses of persons who have previously been affected in hot climates; and very few cases have been recorded. But in the *Dublin Medical Press* for 1843, p. 292, Dr. C. Kidd narrates two cases; and Surgeon R. Cane[‡] gives several which occurred in his practice. It is, however, very rare in this country; but is comparatively frequent in tropical regions, although not so common as is generally supposed. The duration varies from less than a week to several months or even years; but the usual time is about six weeks to two months. The prognosis is favorable; but once a person is attacked he is liable to a recurrence of the disease. The patient whose case I am about to narrate had a prior attack two years before, and which lasted nearly two months.

August 23rd, 1866. In lat. 29° 22′ N. (by observation), and long. 39° 11′ W. (by chronometer).—J. H——, one of the crew, aged forty-nine, came to me complaining of not being able to see at night-time unless the moon shines very brightly. He can see perfectly during the day. As the weather has been warm (thermometer 80 on an average in the twenty-four hours), he has been in the habit of sleeping on deck at night, and he thinks the moon must have shown on him as he slept, there being no awning spread. On examining his eyes, I found the pupils dilated and but slightly sensible to light; otherwise nothing abnormal could be noticed. He complains of intense headache, which is worse over the eyes and at back of head. He took at once one grain and a half of tartar emetic in two ounces of water, and applied the vapor of aromatic spirit of ammonia to each eye for a couple of minutes, this latter to be repeated during the day; a cantharides blister to nape of neck at bedtime. His bowels are open. He was also told to bathe his eyes in cold water several times daily.

24th.—The aromatic spirits of ammonia not being strong enough, he was ordered to use liquor ammoniæ slighly diluted; the vapor to be applied to both eyes four times a day. He took another dose of tartar emetic (one grain), as headache still continues. Ordered to keep out of the sun as much as possible. A lighted candle held close to his eyes at night seems "like a spark of fire surrounded by a fog."

26th.—Took another grain of tartar emetic yesterday. The sight remains as before, but the pupils still act slightly to the stimulus of light. Another blister to be applied to back of neck for six hours, then to be removed, and a poultice applied until it rises. He continues using the fumes of ammonia as before.

27th.—As the bowels are somewhat confined, he was given a draught containing sulphate of magnesia and one grain of tartarised antimony. His headache is greatly improved, and he does not feel so dizzy as he did before.

29th.—Cannot see in the moonlight when the moon shines brightly, which he could do until now. As his appetite is poorly, he takes a wineglassful of infusion of gentian every morning an hour before breakfast.

30th.—Ordered a cantharides blister, the size of a florin, behind each eye.

Sept. 1st.—Pupils still dilated, but do not now contract to the stimulus of light. He feels, however, *lighter* than he did.

4th.—Bowels being confined, gave a black draught containing a grain and a quarter of tartar emetic. I added the antimony as he felt dizzy and heavy about the head. Another blister to nape of neck.

14th.—No alteration for the better, and all treatment has been discontinued since the 4th inst. The vessel came into port to-day, and two days afterwards all the crew were discharged, and I lost sight of him. It is very probable, however, that he recovered his sight after a short time, as happened to him in his previous seizure.

Medicine seemed to have no effect in this case; and I think in a good many instances if not in all the patient may safely be left alone, guarding of course the eyes from any hurtful glare or annoyance. In support of the latter assertion, I may mention the cases published by Surgeon Wharton,[*] of the United States Army, who treated his patients merely by secluding them in a dark room with the greatest success; which may lead us to suppose also that this affection depends upon *a decrease in the sensitiveness of the retina*, rest of the eyes curing it.

In regard to the ill effects of the moon in tropical regions, I may mention that I have seen in a lad, aged eighteen, numbness of the face, with a good deal of swelling arise from his sleeping on deck with the moon shining on his face, and which lasted two days; also the fact, well known to nautical men, that fresh-killed meat hung up and the moon's rays allowed to fall on it will rapidly become putrid, and be rendered unfit for use in an incredibly short time.

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[*] Morbid Anatomy, vol. ii., p. 191.

[†] Lond. Med. and Surg. Jour., vol. v., p. 463.

[‡] Dub. Jour. Med. Science, vol. xviii., p. 169.

[*] American Jour. Med. Science, 1839, p. 93.

Dublin, May, 1868.

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# ON A CASE OF LEUCE.

By Thomas Chaplin, M.D.

Mohammed Abbas keeps a shop in the bazaar of Jerusalem. He is thirty-five years of age, married, and the father of two children, who died of cholera during the epidemic of 1865. Around both eyes, on the nose, cheeks, and upper lip, chest, back, arms, and legs are white discolorations, more or less rounded in outline, smooth, and soft to the touch. The hairs upon these spots are white, though with here and there a black one amongst them; and these white hairs are more crisp and dry than the others. At first sight, and viewed from a distance, the spots appear depressed below the surrounding surface; but the finger passed from sound to affected parts detects no depression. There is no loss of sensation in the spots, and no pain, except when he goes much into the sun, or the weather is very hot, when heat and tingling are felt in the diseased portions of the face, which then become of a pink color, and occasionally have minute vesicles formed upon them. He states that the disease begins as a small white spot "like a seal," which subsequently extends itself, and becomes joined to others. The skin first becomes white, then the hairs upon it. He has had the complaint from his youth; but during the last five or six years it has been worse. He is strong and otherwise healthy; and considers the disease to have been caused by his mother having on a certain occasion been violently agitated during her pregnancy with him, after which occurrence all the children she bore were thus affected.[*]

This case closely corresponds to the description of *leuce* given by Celsus.[†] (1) It is more unsightly and disagreeable than dangerous; (2) it resembles *alphos*,[‡] but differs from it (3) in being whiter and (4) extending deeper, affecting the rete mucosum, whereas alphos is a disease of the cuticle; (5) in the hairs growing on the affected parts being white, and otherwise altered in character, and (6) in being incurable.

Some of our most learned modern writers have classed leuce amongst the squamous diseases. Yet in the earliest descriptions of this malady extant no mention is made of scales. Celsus tells us that that alphos is "subasper," but makes no such statement in reference to leuce. In the "Medical Definitions" ascribed to Galen, leuce is defined as "a preternatural change of the body to a white color;"[§] and elsewhere Galen thus gives the distinction between alphos and leuce: "The origin of the alphoi is indeed similar to that of the before-mentioned affections (leucai), yet the entire flesh is not affected, but the alphoi are implanted like scales upon the surface of the skin."[*] Nowhere does he speak of scales in connexion with leuce. Paulus Ægineta, in describing leuce, says: "It is a change of the skin to white, occasioned by viscous, glutinous phlegm," and makes no allusion to scales. De Sauvages has informed us that the signs of leuce are "maculæ amplæ...... non squamosæ......and glabræ et coloris very albidi ......his adde pilos albos,"[†] &c. Bateman also distinctly states that leuce is not a squamous disease.

Dr. Mason Good, in his "Study of Medicine," makes *leuce*, the *beharath lebena* of the Mosaic law, and the white *baras* of the Arabians, to be identical; and, under the name of Lepriasis candida, describes the affection as consisting of "scales on an elevated base, glossy white, with a deep-central depression," &c.[‡] Yet in the Mosaic account of these so-called "leprous" diseases (as in the early descriptions of leuce) there is not a word to intimate that any of the forms were distinguished or accompanied by desquamation of the cuticle.[§]

In the third verse of the thirteenth chapter of Leviticus one of the tokens by which a case is to be judged unclean is stated to be, that "the plague in sight be deeper than the skin of his flesh." These words (which are an accurate rendering of the original) may mean either that the plague appeared to the eye to affect the structures beneath the skin of the flesh (cuticle?), or that the affected parts were depressed below the surrounding surface. Many translators, ancient as well as modern, have adopted the latter rendering; yet, since that form of disease in which a hollow or depression of the surface is produced is specially described in another place,[‖] it seems reasonable that here the natural and more obvious interpretation should be adopted: so that of the three affections mentioned in the beginning of this chapter (verse 2) we may regard one as characterised by bright white spots, with white hairs growing in them, having a tendency to spread, and affecting the parts beneath the skin (cuticle) —precisely the characters ascribed by Celsus to leuce, and presented by the case narrated above.

This man's disease is called *baras* by the Arabs, and is probably one of the forms included by the Arabian writers under the term *baras el abyad*, or *white baras*. But the Arabs also described under this name another disease, more formidable in its nature, and producing pits or hollows in the skin.[¶] This latter may be identical with the affection described in Lev. xiii., 18, 19, 20; and with the more severe form of leuce alluded to by Galen in the passage quoted.[**]

Jerusalem, April 12th, 1868.

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[*] The natives of this country frequently ascribe obscure diseases to fright. Half the "lepers" in Jerusalem, will give a circumstantial account of a fright they have sustained from robbers, wild beasts, and so on, to which they attribute the origin of their malady.

[†] De Medicina, 5, 19.

[‡] There can be little doubt that alphos included both the Lepra vulgaris and L. alphoides of Bateman. In the latter, "quædam quasi guttæ dispersæ esse videantur"; the former, "latius et cum quibusdam intermissionibus serpit." Bateman himself regarded L alphoides as "merely a variety" of his first species.

[§] Def. Med., 373.

[*] Galen, de Sympt. Causis, 3, 4.

[†] Nosologia Methodica. Amsterdam, 1768, vol. ii., p. 600.

[‡] Study of Medicine, vol. iv., p. 586.

[§] See Smith's Dictionary of the Bible, art. "Leprosy."

[‖] Leviticus xiii., 18, 19, 20.

[¶] Avicenna, 4, 7, 2, 9.

[**] De Sympt. causis, loc. cit.

# A Mirror
# OF THE PRACTICE OF
# MEDICINE AND SURGERY
# IN THE
# HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

## GUY'S HOSPITAL.

### THREE CASES OF ACUTE RHEUMATISM TREATED BY DIFFERENT METHODS.

(Under the care of Dr. WILKS.)

IN some recent visits to the medical clinical wards of this hospital we have watched the cases which are here briefly recorded. There was nothing especially remarkable about them; and we only refer to them here because they illustrate three different modes of treatment.

Patrick C——, aged twenty-six, laborer, was admitted on the 29th of January last with swelling, redness, and tenderness of both knees and left ankle, and the general characteristics of acute rheumatism strongly marked. Temperature 101·7°; pulse 90. A not very loud systolic bruit was heard at the base, and the second sound was rough. His illness dated from Jan. 15th; and began with malaise, followed, two days afterwards, by pains in the wrists, elbows, and ankles, which were red and swollen. Other joints were then affected in turn. During the night of admission he had some delirium. Next day he was ordered an ounce of quinine mixture, with half a drachm of sulphate of magnesia, three times a day, and one grain of opium at night; milk diet. This treatment was continued during the nineteen days following, the pulse decreasing in frequency, and the temperature gradually assuming its normal height. On Feb. 18th he was sitting up, and seemed pretty well. Eight days afterwards he had a slight relapse, and the temperature ran up to 100°. His knees, elbows, left hip, and back of the neck became tender. On March 2nd a small blister was applied to these parts. Next day he had no pain, except in the back of the neck. His temperature was 99·6°. From this time he rapidly became convalescent.

Sarah C——, aged twenty-seven, was admitted (according to the notes of Mr. F. Taylor) on March 5th, with a temperature of 101·8°, quick pulse and respiration. The ankle, knee, wrist, and elbow joints were all swollen and tender. There were strongly marked symptoms of acute rheumatism. The heart's dulness reached from the second intercostal space to the sixth cartilage, and extended to the right just beyond the middle of the sternum. At the apex a soft systolic murmur was heard. At the base the second sound was very sharp, and a rough murmur was heard with the first sound, louder than at the apex. Base of left lung dull; over base of right lung slight bronchial breathing and increased vocal resonance. This patient had rheumatism eight years ago, but not so severely as now. She does not know whether her heart was then affected. About Christmas she caught cold and had shivering; and on Jan. 1st, 1868, her joints became swollen. In three or four days she began to get about, but again became worse, and kept her bed for fourteen days before admission.

March 4th.—Blisters were applied to the affected joints, and camphor mixture three times a day ordered.

On the 5th the patient had no immediate relief from the blisters; on the 6th, however, there was no pain in the joints, but there was then intense pain in the chest, which a blister on the sternum relieved considerably. On the 9th a blister was applied to the loins.

26th.—She is now convalescent.

Jessie M'D——, aged seventeen. From the notes of Mr. J. P. Hartree we learn that this patient was admitted on the 6th of February with pains in the knees, right ankle, and left arm, and general symptoms of acute rheumatism. The precordial dulness was increased in extent, especially upwards. There was a systolic bruit, probably pericardial, and the heart-sounds were indistinct. There was a doubtful history of head affection from infancy.

She was laid in blankets, two over her, together with a woolen rug under, and a flannel gown. No other treatment was adopted, except on Feb. 10th, when she had one grain of opium at night and a blister to the cardiac region. Her highest temperature was on the 10th, 104·2°; after this it gradually decreased. She sweated very much, and, the nurse told us, smelt disagreeably. She remained in bed till March 3rd, the blankets not being changed during this period.

She went out on March 15th, the systolic bruit remaining as before.

### MALIGNANT DISEASE OF THE BLADDER; DILATATION OF URETHRA; REMOVAL OF DISEASED MASS; APPLICATION OF STYPTICS.

(Under the care of Dr. BRAXTON HICKS.)

OF the case here briefly recorded, Dr. Hicks remarked that it showed how much the bladder was capable of bearing local treatment; and he was much gratified at the result of the severe operation, which he was not aware had been done before. It formed a strong contrast to a case in the next bed, apparently as bad, but in which no local treatment had been employed. Quick dilatation was very manageable: the finger passed readily, and even a forceps by its side. He believed that very much could be done in villous disease of the bladder, both in diagnosis and treatment.

Mrs. ——, aged sixty, had been suffering from great distress in the bladder, making her frequently call out. A quantity of blood and mucus was passed constantly. On examining per vaginam, a swelling was detected, apparently in the bladder. This the catheter showed to be a soft mass, which readily bled on being touched. As she was losing much blood, Dr. Hicks thought the disease might be attacked locally.

The patient having been placed under chloroform, the urethra was dilated by a Weiss's dilator; the finger readily passed, and a cauliflower-like mass, the size of a small orange, was found attached to the posterior wall of the bladder. It was evident that the disease had not yet extended beyond the walls of the bladder. As much of the mass as could be with safety removed was taken away by forceps and the wire-rope écraseur, with very little bleeding. To the base, solution of perchloride of iron was applied by means of lint passed through the urethra with a forceps. After this the bladder was thoroughly washed out with water.

The effect of this treatment was to restrain bleeding for months. For a week after the operation there was some feverishness, and about the same distress as before; but after this the bladder held urine for a much longer period, and she was evidently suffering much less from frequent desire to micturate.

About six months afterwards the bladder became more irritable, and the urine bloody; she was consequently again put under chloroform, the urethra dilated, and the bladder examined. The disease had not recovered its original size, but was firm and smooth. A strong solution of tannin was applied, and the bladder well washed out afterwards. The disease did not appear to have extended beyond the walls of the bladder. This operation did not cause much pain afterwards, and, although she still has forcing-down and tenesmus, her state is much more satisfactory than it was on entry; the contrary of which might reasonably have been expected had she been left alone.

### APOPLEXY AT TWENTY-ONE YEARS OF AGE, FROM DISEASE OF CEREBRAL ARTERIES AND HYPERTROPHY OF SYSTEMIC HEART.

(Under the care of Dr. MOXON.)

The following case is worthy of attention as a remarkable example of a usually senile disease occurring in a young man, scarcely indeed out of boyhood.

Wm. Henry H——, aged twenty-one, was running to catch a train at London-bridge Station, when he fell insensible. He was taken to Guy's Hospital, and it was then found that he had hemiplegia of the right side. He could be made to give some signs of consciousness, though with difficulty. He vomited bloody liquid after admission to the ward; he became more deeply comatose, and died three hours after the attack.

Examination of the heart made during life failed to show any disease of that organ.

*Post-mortem inspection.*—The body was of average height; hair dark; features short and square; surface-fat in average quantity, and muscles of good color. The cranial bones were natural, and the membranes of the brain also healthy; but the left side of the brain was obviously swollen, its surface being flattened against the skull. The corpus callosum also was raised by something beneath. On cutting into the brain, there was found a very large clot of blood in the most usual situation of apoplectic effusion—namely, in the corpus striatum; and about it the brain-tissue was much torn up, the laceration extending through the corpus striatum into the left external ventricle, so that a large part of the clot ran on into the ventricle, and further pressed through the septum lucidum, tearing this, and presenting itself in the right lateral ventricle. On gently washing away this immense clot and throwing water with a syringe into the left Sylvian artery, the water was found to escape from a broken vessel corresponding to one of the penetrating arteries of the locus perforatus anticus. The Sylvian arteries showed a marked extent of disease in the form of sharply outlined patches of sulphur-yellow color, opaque and thick. There were many such patches on these vessels, which were also thicker than natural, and more rigid. The basilar artery showed the same yellowish change at its bifurcation, and was thick like the Sylvians. The lungs were healthy. The heart was large, weighing fifteen ounces. This hypertrophy was limited to the left side of the heart; the right was quite small. There was no dilatation of the cavities. The left valves were coarse, but, by experiment, were shown to be competent; their over-substantial condition (which affected the meeting edges principally) was probably the direct result of the unnaturally forcible exercise to which the hypertrophied heart put them. The coronary arteries were much diseased, offering the same appearances as did the Sylvian arteries. On the other hand, the radial arteries were both free from the yellow patches; indeed they showed no recognisable morbid change. The stomach contained a little blood, but no abrasion of its surface could be seen to account for this. The liver, spleen, and kidneys were loaded with blood, but healthy; neither these organs, nor the testes, nor the bones giving any sign of the presence of syphilis.

In considering this case, we are first struck with the plain and satisfactory explanation of the mechanics of the apoplexy. We find, on the one hand, the cerebral vessels weakened by disease; and, on the other, a greatly hypertrophied systemic heart. The overstrong left ventricle, further, did not act under any countervailing impediments, such as narrowing of the aortic orifice of dilatation of the ventricular cavity. These conditions will leave the mind in no doubt as to the causation of the rupture of the vessel in the brain. It is worth noticing that examination of the heart during life did not reveal the cardiac hypertrophy, This latency of cardiac hypertrophy has been noticed so often as to lead Dr. Moxon to doubt whether simple hypertrophy without dilatation of the left ventricle yields any signs during the life of the patient.

The occurrence of such extensive disease of the circulatory system in a person so young is very interesting, and the freedom of the case from the two leading factors of arterial degeneration—namely, age and renal disease—renders this an example which may serve to test some of the views which common experience of arterial disease gives rise to. Did the enlarged heart strain and damage the vessels? No doubt the heart's action is a cause of arterial disease. The arteries bear well, but yet imperfectly, the constant stretching to which they are subjected. However young the subject may be, some patch of yellow degeneration is to be seen in a significant spot just above the aortic valves, and on the side of the *convexity* of the aortic curve, where, indeed, the violence of the ventricular jet must first be met. In more elderly persons the form and distribution of the yellow patches of degeneration, again, have the same significance. These patches are elongated, and run in the vessel's wall *lengthwise*, plainly pointing to the *distensive* transverse force of the injected blood-stream as a governing element in their causation. Again, and most importantly, the frequency of degeneration of the pulmonary arteries in cases of hypertrophy of the right heart, either from mitral disease or imperfection of the lungs, is a convincing proof of the direct effect which an unnaturally severe distensive force has in damaging the vessels that suffer its action. Yet again, though this time more equivocally, the frequent vascular disease in persons who habitually use long and strong muscular efforts, as sawyers or boatmen, points to the excessive action of the heart which accompanies violent exercise as a cause of such vascular disease. Was such the sequence in the case before us? Probably not so or surely the aorta would have shown the greatest degree of disease instead of being practically healthy, as it actually was; while such a view, if allowed, would leave unexplained the uneven distribution of the disease over the smaller vessels, which, for instance, left the radials untouched. while it affected the Sylvian and coronary arteries The fact itself of such freedom of the radials coexisting with extreme disease of the coronary and cerebral vessels is worth more than a passing notice, as showing that we cannot tell by the state of the vessels at the wrist what may be the state of vessels in internal parts: *with a natural radial may go a fatally diseased cerebral artery.* If the cardiac disease did not cause the arterial, did the arterial disease cause the cardiac? This case gives no special answer. Many facts go to show that peripheral vascular obstruction will cause cardiac hypertrophy; and, as bad vessels may obstruct the blood-current, the conditions of this case are compatible with such a view, if anyone is content with it; but no one can be so content who reflects how very commonly we meet disease of the vessels to a great extent without any hypertrophy—nay, even with atrophy—of the heart. If, then, it is probable that neither the cardiac caused the vascular disease nor the vascular the cardiac, did they both arise out of some common cause influencing the vascular system? First and simplest was there a diathetic or natural or original weakness of the vascular system? The ease of such an hypothesis renders it tempting, and so more dangerous than it would be if it were only bad, as it is, because it can be neither proved nor disproved. We meet people whose hair early grows senile; also wasted cystic senile kidneys at early age are met with, and premature senility of the arteries as a system might be allowed. But though the arteries may have been weak as a system by the nature of the man from his birth, yet this would not show why the disease was confined to the systemic side. The pulmonary heart and arteries escaped entirely, and hence we are compelled to look for some cause of the disease which operates on the left side only. This suggests some unsuitable condition of the blood, an impurity which would render it offensive to the tissues which feed upon it; but agreeable to the lung, which is fitted for impure blood in virtue of its function. Such a condition we have in Bright's disease, where, with a urinous state of blood, we get hypertrophy limited to the left heart, along with hypertrophy and general degeneration of the systemic arteries. Whether the latter condition is due to the small arteries irritably contracting against the urinous blood, and the left heart striving imperatively to force the blood on, and the arteries then obstinately contracting harder, while the heart is equally obstinate on its side; or whether, on the other hand, the left heart and systemic vessels together increase because of the augmented effort required of both in their several functions in maintaining the circulation of the blood that, because impure, is unwelcome in the tissues,—these are questions that do not admit of solution. But the state of the left heart and vessels in Bright's disease must somehow be due to the impure blood; and though in the case before us no Bright's disease existed, yet the blood may have been impure in other ways. It is not farfetching to suppose an imperfect digestion, for instance, which should cause to pass into the circulation a crude product, and so call for excess of action of the heart to urge the impure blood through the unsatisfied tissues. Violent action of the heart in indigestion is common enough; it is generally explained by reflected nervous impressions along the pneumogastrics; but such palpitation may be due to the ill-digested substances, unfitting the blood for its functions. Some such condition is indicated by the hypertrophy, &c., limited to the systemic heart; but an inherent or diathetic weakness may have helped the development of the fatal disease. The case conveys an obvious caution against running to catch a train.

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## METROPOLITAN FREE HOSPITAL.

### MONOCYSTIC DISEASE OF THE OVARY; OVARIOTOMY; LIGATURED PEDICLE RETURNED INTO THE ABDOMEN; RECOVERY.

Under the care of Mr. J. Bankart.)

For notes of the two following cases we are indebted to Mr. J. de Liefde, house-surgeon:—

A. B——, aged forty-five, married, and the mother of seven children, the youngest born seven years ago, came as an out-patient to Dr. Pye Smith complaining of abdominal pains and enlargement, which prevented her from properly performing her household duties, and have lately somewhat damaged her general health. She could not tell on which side the enlargement began. She is a spare woman, of tolerably healthy appearance; had not menstruated for seven years. On examination the enlargement evidently consisted of a fluid tumour, which reached to a point midway between the umbilicus and the sternum. It could be seen to move within the abdominal wall during the respiratory movements, and it came very prominently forward. The uterus was small, very high in the pelvis, and apparently quite free. Fluctuation was very distinctly felt all over the tumour, which was thought to be a single cyst.

On Feb. 11th, at eleven A.M., ovariotomy was performed by Mr. Bankart. The room being at a temperature of 65° Fahr., chloroform was administered. An incision, about five inches in length, brought the cyst into view. It was seen to move within the abdomen. The cyst was then tapped, and fluid of the usual thick character drawn off. As the tumour diminished in size, one or two efforts, as if to vomit, partially expelled the cyst, which was then seized and drawn out, there being no adhesions of any kind. As the cyst escaped through the wound the abdominal wall was grasped closely around the pedicle by Mr. Bryant, who, being present, kindly assisted. There was no bleeding from the wound, and as soon as the cyst had emptied itself, which it did completely, a double ligature of whipcord was passed through the pedicle, and tied in two parts, the pedicle being about three inches in width, and of moderate length. The pedicle was then divided, and the ligatures cut off short, the pedicle slipping back into the abdomen as the last ligature was divided. There being no bleeding, and but little fluid having found its way into the abdomen, no exploration was made of the interior; neither uterus nor intestines were seen, and neither sponge nor hand was allowed to come into contact with the peritoneum, except just the point of the finger in afterwards passing the sutures through the edges of the wound. Three deep sutures were passed through the wall excepting the peritoneum, and a thick pad of lint being placed over the wound the whole abdomen was covered with cotton wool, and firmly sewn up in a broad flannel roller. A suppository of opium was introduced before recovery from the chloroform, and the patient then placed in bed.

The tumour proved to be composed of one large cyst; but on turning it inside out, three very small secondary cysts were found at the lower part, the biggest about the size of a large pea. About an inch and a half of the Fallopian tube was spread out on the pedicle and lower part of the cyst, and was removed with it.

On the day previous to the operation the bowels had been moved by a small dose of castor oil, and the lower bowel was emptied on the morning of the 11th by an enema of warm water.—8 P.M.: Had vomited once. Pulse 80, fair in tone. Ordered ice and arrowroot.—12 P.M.: Vomiting continued. Complains of a pricking sensation in the wound; skin cool and moist; pulse 100, good power. Urine to be drawn off two or three times a day. On inquiring about the vomiting, she stated that cold water always makes her vomit; the ice was therefore ordered to be discontinued.

Feb 12th.— A.M.: Has passed a good night, and is free from pain. The vomiting has ceased. Pulse good, 98. Beef-tea ordered.—9 P.M.: Has a little headache. Pulse 96.

13th.—Sutures removed from wound. No distension, and very little tenderness except close to wound. A broad piece of strapping placed across abdomen to support the wall. Pulse 92.—10 P.M.: Has expectorated a little mucus several times since noon. Skin rather dry and hot. Pulse strong, 100. Appetite good; has taken beef-tea and toast during the day.

14th.—10 A.M.: Was restless during the night, Complains of wind on her stomach. Pulse 96. Suppository of opium to be repeated.—10 P.M.: Very comfortable.

16th.—Wound healthy; edges slightly overlapping. On drawing off urine in the evening thick mucus clogged the catheter.

17th.—Urine clear.

18th.—A considerable quantity of ropy mucus in the urine, which is ammoniacal. It was suspected that the ligatures might be setting up irritation of the bladder, or even be making their way through. She states, however, that in her confinements she has never been able to pass water until she could sit up in bed, and possibly the passing of the catheter may be now the cause of the mucus in the urine. She is otherwise quite comfortable. Pulse 96.

21st.—Urine clearing.

29th.—Sat up in bed.

March 6th.—Complains of piles. Ordered enema of castor oil, after which the bowels were relieved for the first time since the operation (twenty-two days).

9th.—The bowels being rather sluggish, confection of senna was ordered every morning.

From this time she progressed steadily, and went out well.

### FATTY TUMOUR; EXCISION; IMMEDIATE UNION.

J. R——, aged forty-two, a married woman, came to Mr. Bankart with a fatty tumour just above the right breast, about the size of a man's fist.

March 5th.—The tumour was removed under chloroform, and easily turned out, except at one spot, where it was adherent to a cicatrix in the skin, at which spot it was said to have commenced. There was no history as to the cause of the cicatrix. The tumour was carefully dissected away from the cicatrix, and after the bleeding had ceased, which took place after a little time without the application of a ligature, the edges were brought together by four sutures and strapping, and a pad of lint applied over the whole surface with considerable pressure, the arm being bandaged to the side and perfect quietness enjoined.

9th.—The sutures were removed, and the wound was found to have united along the whole extent. The arm was then simply fastened to the side No more dressing applied.

14th.—Discharged cured. The pulse had never risen, and not a drop of pus had formed.

## CHARING-CROSS HOSPITAL.

### CASE OF EXALTED REFLEX IRRITABILITY OF THE SPINAL NERVES ON THE LEFT SIDE OF THE BODY.

(Under the care of Dr. SALTER.)

The very curious case which is here described is one of several broadly allied apparently in their pathology which we have lately seen in the hospitals of London. Our readers will remember that we referred several months since to one in St. Bartholomew's Hospital, under Mr. Holden's care: a boy in whom, by touching the upper part of the spine or a small tumour on the side of his neck, unconsciousness, with muscular rigidity and other anomalous symptoms, were produced. The case is graphically described by Mr. Holden in the volume of St. Bartholomew's Hospital Reports for 1867.

Another case was not long since under Dr. Barclay's care, to which reference is made further on.

There is just now in the Middlesex Hospital, under Dr. Greenhow's care, a man, fifty years of age, affected with motor ataxy, in whom reflex spinal excitability is remarkably exalted. An unexpected touch produces violent spasmodic contractions of the legs, accompanied by a painful appearance of alarm and distress. This has been produced frequently by the accidental dropping of a diet-card upon his bed, or the chance touch of a student's coat against the bedclothes.

an interesting feature is that if the man is prepared for the touch no effect is produced.

The following is an account of Dr. Salter's case:

Frederic D——, aged fifty, by occupation a clerk, married, and of regular habits, was admitted into the hospital on the 12th March. He was quite well up to eighteen months ago, when he experienced a sudden fright and shock, from finding a man at night apparently dead at the bottom of a staircase. The man died the next morning. It so overcame him that he has been in a nervous and agitated state ever since; the slightest thing producing palpitation of the heart and a sense of alarm. He sleeps in a house alone at night, and if the slightest sound occurs, such as a door creaking, or a blind shaking in the window, or a window rattling from the wind, it startles him so that it completely takes away his breath, and sets his heart palpitating to such a degree that he is obliged to place both his hands upon it, as it were to quiet it. From the time of the occurrence he has felt restless, unsettled, and unwilling to be alone; disliking the dark, and burning a candle "for company;" very low in his spirits, and given to sighing. Even any unusual exertion will, since that time, produce breathlessness and palpitation, which was never the case before. But a most curious circumstance is, that from that time he has felt an aching tenderness in the whole of the left side of the body, including the left arm and leg, the feeling being the same as if he had been over-using the muscles. There is no surface tenderness, no cutaneous hyperæsthesia, but a tenderness of the muscles on pressing or squeezing them, and a constant wearying aching in them. At the same time that this symptom appeared there was also observed a tendency of the left arm and leg to start involuntarily, accompanied with a feeling like cramp, coming on in the leg, especially on walking, or still more if he attempted to run. The movement would jerk his leg to such a degree that it would jump off the ground, so that it suddenly obliged him to stop and hold his leg with his hands. In a moment it would go off again, and he would be able to resume his walk. The right side of the body was perfectly free both from the tenderness and the jerkings. But a still more curious phenomenon, that was recognized soon after his admission into the hospital, but which had existed from the first, is, that if his left arm or leg is squeezed or grasped, it suddenly became tetanic—starts up, or flies out, without the will or control of the patient, and becomes momentarily stiff or rigid, reminding one of a galvanised or strychnised frog. As long as the limbs are not touched they remain perfectly quiet and motionless; nor will merely touching them move them—it must be a firm squeeze; but the moment they are grasped, up they fly in the convulsed condition described. The same squeezing applied to the muscles of the right limbs produces no result whatever.

Dr. Salter observed that this case was remarkable in three particulars. In the first place, it was remarkable from the nature of the phenomena themselves; in the second place, from their unilateral distribution; and in the third place, from their dating from an emotional cause. About this last point there could be no doubt; the man's *morale* ever since the fright, and the fact that he never had the symptoms before and has had them ever since, leave no doubt that they are to be attributed to the mental shock he sustained. If such symptoms were observed in a woman, they would be classed among the extravagant manifestations of hysteria. Perhaps the absolute pathology of the case, bearing in mind its emotional cause, and that it consists in a perturbation of the function of voluntary movement affecting one side, comes nearer to that of chorea than anything else. But if it were sought to define the actual condition apart from its essential pathology, it would appear to consist in an exaltation of reflex irritability in the left half of the spinal cord and its nerves. Whether the cord itself was at all concerned, or whether the disproportionate development of reflex results depended merely on a morbid irritability of the afferent nerves, might be doubtful. Dr. Salter was inclined to believe that this last was the true view, and that the nerves affected with this hypersensitiveness were solely the nerves of "muscular sense." There was no cutaneous hyperæsthesia—the hyperæsthesia was strictly confined to the muscles; and the violence of the reflex results was in proportion to the strength with which the muscles were squeezed.

Since these notes were taken, we find that the man, having steadily and rapidly improved, left the hospital perfectly well, after having been in it three weeks, although he had suffered from the symptoms for eighteen months. The treatment adopted was at first tonic and sedative, afterwards simply tonic. Dr. Salter attributes the patient's speedy recovery as much to the moral effect of the assurance that he had nothing serious the matter with him as to any special influence of the treatment.

## WESTMINSTER HOSPITAL.

### STRICTURE OF THE URETHRA OF TWELVE YEARS' DURATION; BLOODY, MUCOID, AND PURULENT URINE; INCONTINENCE; TREATMENT BY RETAINING A GUM-ELASTIC CATHETER; SUBSEQUENT OPERATION BY IMMEDIATE DILATATION; RECOVERY.

(Under the care of Mr. Barnard Holt.)

It was remarked by Mr. Holt of this case that he had selected it as a fair example in which to test the efficacy of retaining a catheter in the bladder for the cure of a real stricture, and he did so for the purpose of pointing out to the students how futile such treatment was.

The notes of the case were taken by Mr. M'Donald.

William D——, aged forty-eight, coachmaker, was admitted on Jan. 17th, 1868, suffering from cystitis, the result of stricture of the urethra. He states that he first perceived the symptoms of stricture after his return from the Crimea twelve years ago. For some time, in addition, he has been suffering from incontinence of urine, the urine itself being offensive, and largely mixed with blood, mucus, and unhealthy pus; on settling it leaves a dark incrustation at the bottom of the vessel. He experiences sharp and severe pain below the umbilicus, at the neck of the bladder, and at the glans penis; and though at times suffering from incontinence of urine, he is often compelled to strain for twenty minutes before he can pass a drop of urine. His condition, mentally and physically, is wretched in the extreme; his spirits are low and desponding to the last degree, his sufferings great, and his general symptoms almost typhoid. His tongue is brown, pulse feeble, and appetite small.

Mr. Holt, with very considerable difficulty, succeeded in passing a No. 1 gum-elastic catheter, and tied it in, opium being administered to deaden any pain that might be caused by the instrument.

Feb. 2nd.—This morning the patient was awoke by the dragging out of the catheter. It had hitched in the bed-clothes, and been torn out as he was turning on his side. It was replaced by a No 2.

6th.—The catheter having now been continuously retained for a period of fourteen days, and the urine passing freely by its side, Mr. Holt removed it, and endeavored to introduce No. 10. This was found to be quite impossible, and only a No. 4 could be passed into the bladder. It was therefore removed, and the dilator introduced, when the stricture was immediately enlarged with the No. 12 tube, a No. 10 catheter afterwards entering with the greatest ease. Ordered quinine and opium mixture.

8th.—D—— has not had a single unfavorable symptom. No. 10 catheter enters easily, the urine is much clearer, and there is comparatively but little pus or mucus present. He experiences but little pain, and that only when he passes his water.

17th.—Bladder ordered to be washed out with a weak solution of nitric acid. The following mixture to be taken three times a day:—Dilute nitric acid, twenty minims; decoction of cinchona, one ounce.

27th.—The urine is now perfectly clear, completely under control, and passed in a large stream, with entire absence of pain either at the umbilicus, neck of the bladder, or the glans penis; and the patient is detained in the hospital simply on account of a carbuncle on his leg. His general health is good, and his appetite excellent.

Mr. Holt pointed out that in this case a catheter had been worn for fourteen days; indeed the original one had been replaced by one a size larger, and yet at the expiration of that time no larger instrument than a No. 4 could be passed. It was perfectly useless to hope that any real stricture could be cured by such means; for as the retention of a catheter does not produce absorption of the lymph effused in the submucous areolar tissue, it can do no more than exhaust muscular contractility by first exciting its action, and ultimately so exhausting it as to permit the passage of a catheter one or two sizes larger than that which was retained. It is absurd to suppose that because it gives rise to discharge, it produces ulceration; for a catheter retained for other purposes in a perfectly healthy urethra always produces a discharge; and if it gave rise to ulceration, then the cicatrix would produce worse results than existed before the treatment was commenced. What good, then, can it exert in the treatment of organic stricture? None whatever; for the contraction returns immediately the surrounding muscular fibres resume their power, and so the patient, after having passed through all the discomfort of wearing a catheter for days or weeks, in a very little time finds himself as bad, or even worse than he was before the treatment was commenced. Let not the surgeon flatter himself that any real progress is being made because he is by such treatment enabled to rapidly enlarge the canal; for so soon as the catheter is removed, so soon does the stricture commence to contract, and both surgeon and patient are disappointed at the result. Without the submucous areolar tissue can be divided, no permanently good result can be obtained. Ordinary dilatation may in mild cases succeed so long as the dilatation is maintained; but the retention of a catheter for the cure of a true stricture is a disappointing fallacy, of which the reported case was but an ordinary example.

After the stricture was split, the case passed on rapidly to recovery. The man could eject his urine in a full stream; it became altered from blood and mucus to ordinary healthy urine. His health was entirely re-established, and a No. 10 could be passed with the greatest ease.

## NATIONAL HOSPITAL FOR THE EPILEPTIC AND PARALYSED.

### CASE OF CONVULSIVE ATTACKS ARRESTED BY STOPPING THE AURA.

(Under the care of Dr. Hughling Jackson.)

Case of epileptiform seizures in which the "aura" is stopped by the application of a ligature or by extension of the muscles first affected, are not very uncommon. This is sometimes so even when the fit manifestly depends (indirectly) on gross organic disease of one cerebral hemisphere. The following is not a common case although it belongs to a common class. For the best account of cases of this sort it is scarcely necessary to say that Dr, Brown-Séquard's work "On Epilepsy" is to be consulted. It may occur to the reader that possibly the partial fits would not go on to a full fit in the case now to be related if nothing were done. It would not, however, be justifiable to make the experiment; and the whole tenor of the case is in favor of the real value of the procedure adopted.

The patient, C——, a man fifty-two years of age was first under the care of Dr. Brown-Séquard in 1861, and then Dr. Hughlings Jackson saw him; the notes, of which what follows is a partial abstract, were taken at that time. The account is purposely given nearly in the man's own words, so that the opinions expressed and the theoretical terms used are the patient's, and not the physician's. Only so much is abstracted as appertains to the peculiarities the case exhibits as one of particular fits stopped by a definite procedure.

1861.—He (the patient) rarely has genuine fits; but he has sensations which would go on to fits if they were not prevented. Before he knew how to stop them, each sensation invariably resulted in a full fit; and it would now if he had not timely assistance.

*Description of the full fits.*—He used to have them once a fortnight, and had never two together. The left leg would begin to draw up and the nerve worked, and it went up and up the spine; and then he became insensible. The first shock was from the base of the great toe; it next passed to the inner side of the foot. After he became insensible, or about that time, his son said that the arms and legs were violently worked; the face also worked, it became of a *dark pale*, and the tongue was generally bitten. He remained insensible about half an hour—once two hours; but even after the lapse of that time he was not quite himself and wandered. However, he shortly went into a deep sleep for two or three hours.

*Descriptian of the partial fits.*—About three years ago he tried to stop the fits by tying a string round the toe, and that would sometimes, though rarely, stop them. Afterwards he tied a string round the ankle, but he never applied anything higher. One morning he asked to have his leg rubbed, and has since been able to stop the fits. When a fit begins, he falls if there is nothing to catch hold of. He is however, raised, and the leg, which becomes flexed, is rubbed. The following is copied, with a few verbal alterations, from Dr. Hughlings Jackson's case-books:—"His son tells me, partly by words, but chiefly by demonstrations, how he proceeds when the attack comes on. His father being standing, and holding by something, the son kneels in front of the leg, pushes his head against the knee, and holds the heel to the ground, and rubs the calf violently. When he gets the leg straight, it is all right. He occasionally asks some one to help him to get the heel down. The muscles of the calf sometimes stand out quite hard and stiff, and the leg works and twists all manner of ways. The patient says he has a pain like a cramp from the middle third of the leg behind, and it goes higher but how much higher he cannot say. If the leg can be kept down, there is, the son says, no working about the knee. Whilst all this is going on, the patient feels very ill, and his nerves are all at work. He feels as if shaken to pieces. Occasionally he is jerked all over, and especially when the fit is leaving; it gives then several jerks, and goes away. He often has a slight jerk in the leg without anything further."

At one visit he remarked to the effect that by touching the foot at or about the crossing of the tibialis anticus tendon, the jerking and the seizures can be brought on; but touching that spot on this occasion produced only a "feeling of something like an electric shock to the little toe." The following extract from Dr. Hughlings Jackson's notes is also of much interest:—"He is quite clear that when the fits used to be severe [he means the fits described above as full fits], he did not lose power in any of his limbs; but now that the fits are stopped, the left leg is 'paralysed' after each attack. He can, he says, bear no weight on it after the seizure, and on getting along by help he drags the foot with the toe on the ground. The leg gets well gradually in about an hour.

May, 1865.—Dr. Bathurst Woodman, the resident medical officer of the London Hospital, was a witness at the Old Bailey on a trial on which the patient C—— was a witness too. Dr. Woodman on that occasion saw an attack which was so strange that he would have suspected malingering had it occurred in an out-patient. C——, cried out suddenly "Rub my leg." His son (C—— always goes about with his son, so that skilled assistance may be had promptly when a fit begins) knelt down and began to rub it violently, the father urging him on. Dr. Woodman felt the lower part of the thigh, the muscles of which were lax; he then felt the calf, and found the muscles firm. From the first the leg was in continual agitation. Soon C—— said "Rub away, it's getting higher:" and now, on feeling Dr. Woodman found that the previously lax muscles of the thigh were firm and rigid. After some time the man said with a sigh of relief, "It's all gone now." He was shortly called into one of the offices, and as he walked away Dr. Woodman noticed that the left leg was dragged with a slight swing. He told Dr. Woodman that it was always so after a fit, and he complained that the hand and the arm of the same side were numb and weak, although he could make almost any movement with the limb.

The patient goes to the London Hospital now and then. He is what, for want of accurate knowledge, is called a hypochondriac. One day he attempted suicide, and was afterwards locked up for a night in a police cell. Dr. Hughlings Jackson thinks there is much truth in the view Dr. Copland takes of hypochondriasis—namely, that it is due to a fault in the ganglionic nervous system.

## ST. GEORGE'S HOSPITAL.

### A CASE OF ANOMALOUS NERVOUS DISORDER.

(Under the care of Dr. Barclay.)

The following is a brief account of the patient to whose case reference has been made. Dr. Reginald Thompson, medical registrar, has courteously obliged us with the particulars.

Emily S——, aged seven and a half years, was admitted January 27th, 1867. Ever since her birth she has been fretful, and for a very long time now has been subject to transient fits and great nervous irritability. The child never talked at all until seven years of age. She often complained of her head, and put her hand to the top of her head as if in pain there. Father and mother reported healthy; four other children all well. This child used frequently to go into uncontrollable fits of laughter, and would laugh till she fell. It was said that she was worse in cold weather.

On admission the child appeared to be in perfect health, and was well made; the head not large, the skull natural, rather of a simple countenance, but could not be said to have any vacant look. When touched on the shoulder or elsewhere sharply the child dropped immediately, helpless and quite unconscious, with a slight cry, coming to herself in about three seconds.

She was treated with gradually increasing doses of bromide of potassium (up to thirty grains) three times a day, and at first improved; but after two months confinement in the hospital seemed to affect her health, and the fits became more frequent. She was sent out in April.

# Provincial Hospital Reports.

## HARTLEPOOL HOSPITAL, DURHAM.

### A CASE OF FROSTBITE FROM EXPOSURE DURING SHIPWRECK.

The following interesting case is from notes for which we are indebted, to Mr. James Rawlings, house-surgeon.

Fritz A——, aged eighteen years, a sailor on board the timber ship *Polarestern*, trading between Sonvol in Sweden and Grangemouth. The vessel sailed from Sonvol on the 7th of October, 1867. It met with severe weather, and became water-logged on the 2nd of December. For two days the crew, consisting of nine men, subsisted on biscuits and barley; but on the 4th some heavy seas swept over the deck, and everything was lost. From the 4th till the 8th the crew had no food of any sort, and no drink. They were exposed on deck to the cold and wet, and slept by turns on the bowsprit. One of the crew went mad from drinking salt water, and died before the rescuing vessel reached Hartlepool on the evening of Dec. 12th. The three worst were taken into the hospital; the other men suffered from swelling of the feet and difficulty in walking, but were soon well.

The condition of Fritz A—— on admission was as follows:—Parts of all the toes were quite black, and there was a large circular piece of skin of dusky hue on each instep. The tips of his fingers were congested; and his nose was slightly so. His feet and hands were wrapped in oiled lint, surrounded with cotton-wood, and securely bandanged. On the 19th the bandages were taken off. The little toe and the next on the right foot were crisp and gangreous, and on the left foot portions of all the toes except the first were in the same condition. Carbolic-acid lotion (one part to twenty of water) was applied. He presented no bad symptom, his appetite being good, until Dec. 21st, when his pulse went up to 120, and his breathing became laborious. He then took half a grain of muriate of morphia every two hours, and plenty of brandy. The next morning he was much better.

Dec. 22nd.—The little toe on the left foot, separated at the metacarpal phalangeal joint.

23rd.—Two of the other toes separated at the first phalangeal joint.

26th.—The tips of three toes on the left and two on the right foot have separated, leaving the bone exfoliated.

Jan. 4th, 1868.—Several of the bones were removed with the dressing forceps. The toes and backs of the feet are granulating nicely.

Feb. 1st.—The wounds are slowly healing up. His appetite and general health are good.

March 20th.—He is able to walk about a little, and his toes are all healed up except two small spots on the great toes.

April 22nd.—He was discharged quite well, and being able to walk well, and having greatly increased in weight.

# Clinical Records
# OF
# THE PARIS HOSPITALS.

## HOPITAL NECKER.

### FOUR CASES ILLUSTRATING THE TREATMENT OF ANGEIOLEUCITIS BY COMPRESSION.

(Under the care of Dr. Guyon.)

**The** following cases will doubtless be found of interest, as evincing the results of a special mode of treatment not generally employed in inflammation of the lymphatics. In Mr. Chas. Moore's paper on Angeioleucitis contributed to "Holme's System of Surgery," no mention whatever is made of compression in the treatment of the disease; and Mr. Erichsen, in his "Science and Art of Surgery," only casually alludes to the proceeding as being applicable in the later stages of adenitis. Among the French, Velpeau was the great promoter of this mode of treatment. He commended it when the angeioleucitis was superficial, and extended more in surface than in depth: and particularly when the purulent collections had been opened, and the tumefaction and inflammatory doughiness began to assume the character of œdema. The different points of this great surgeon's practice may be found carefully summed up in the paper which he contributed to Costello's "Cyclopædia of Practical Surgery." With the exception of Velpeau, much attention has not been given by French surgeons to this means of treatment. Nélaton and Vidal, in their respective treatises on Surgical Pathology, merely indicate the proceeding as being worthy of a trial. The authors of the "Compendium" state that it is one which must be set aside; and Follin, in his work on "Surgical Pathology"—the most recent of the French treatises,—alludes to it as having been completely abandoned.

Dr. Guyon, who has taken Civiale's well-known service at Necker, and who was one of Velpeau's favorite pupils, has been tempted to make use of this means in his recent investigations on the treatment of angeioleucitis. Whether the good effects which have attended this trial be due to other causes—such as rest, &c.—may be a question; but, judging from the *ensemble* of these cases, benefit has doubtless ensued from the employment of compression.

The details of the cases we owe to Mr. Edward Alling, Dr. Guyon's house-surgeon.

Case 1.—On February 14th a man aged fifty-nine was admitted into the wards. For a few days previously he had been suffering from a wound on the middle finger, and on Feb. 11th he had noticed some slight swelling. On being admitted, intense inflammation of the lymphatics was found. The whole of the forearm was tumefied and red; there was much œdema, and so much pain that it became a question whether the case was not one of diffuse phlegmon. The hardened red lines, however, which ran up towards the axilla left no doubt on the subject. The same evening compression with a roller was applied.

Feb. 15th.—The progress of the disease has been arrested; the inflammation has lost much of its intensity. A fresh bandage applied.

16th.—The redness has disappeared, except on one or two spots which affect the appearance of patches, of from five to six centimetres in diameter, on the posterior surface of the forearm. Compressive bandage.

17th.—The size of the patches has much diminished. A small abscess which had formed in the situation of one of these patches was opened, and gave issue to matter of a reddish color.

19th.—The patient may be considered as cured.

24th.—He left the hospital, in good condition.

Case 2.—On Feb. 15th a man aged sixty-five entered Dr. Guyon's wards, with a vast sub-aponeurotic abscess situated on the anterior surface of the leg and dorsal surface of the foot. The abscess was immediately opened, drainage tubes were applied, and the wound rapidly cleansed.

Feb. 21st.—The indurated red lines of angeioleucitis were observed, together with tumefaction of the inguinal ganglia. Mercurial inunction applied to the part.

24th.—The adenitis has much increased. The whole of the leg is extremely swollen, red, and painful. Numerous ribbon-like red lines extend along the thigh. The drainage tubes are taken off, and compression applied with a roller.

25th.—The redness has lost its deep hue, and has diminished in extent. A new bandage applied.

26th.—Both the redness and swelling have considerably diminished, but patches of angeioleucitis are observed above the situation where the bandage ends. Another bandage applied, and made to extend over the thigh.

27th.—Bandage taken off.

28th.—A very slight redness is all that is left of the disease.

March 6th.—The patient left the hospital completely cured.

Case 3.—The patient, aged seventeen, was admitted into the wards on Feb. 18th. He had been suffering for a month from a whitlow situate at the extremity of the middle finger. There was at the time of his admission some slight inflammation of the lymphatics, which gradually increased till Feb. 23rd, when large patches having the appearance of erysipelas were seen to extend over the forearm and around the elbow. The subcutaneous tissue tumefied, mostly in the situation of the posterior surface of the elbow-joint. Mercurial inunction, followed by the application of poultices, was the treatment adopted.

24th.—The disease has lost somewhat of its intensity.

25th.—The condition of the patient is much the same. Compression applied with a roller.

26th.—The angeioleucitis has abated in a remarkable degree. A fresh bandage applied.

27th.—The amendment continues.

28th.—The disease has almost entirely disappeared. The compression left off.

March 6th.—Cured.

Case 4.—A man aged twenty-nine, admitted March 21st. On March 1st the right middle finger received a scratch; on the 5th an epitrochlean ganglion was observed to be swollen; next the arm became red, and the redness then extended very rapidly. On the 12th the application of six leeches gave no relief to the patient.

On admission, there was swelling of the entire posterior half of the arm, from the elbow to the armpit. The whole of the part was red and painful. Amidst the general swelling two indurated points were noticed, one near the upper part, the other near the lower part, of the affected region; both being about as large as a nut. No fluctuation whatever. In the evening compression was applied by Mr. Alling.

March 22nd.—The patient feels great relief, and has slept the whole night. The arm has lost much of its redness, and is less swollen. In the situation of the lower induration the skin is withered, and peels off. Use of the bandage to be continued. The same evening the bandage, which had become loose, was retightened. At the same time it was noticed that the inflammation had diminished both in extent and intensity. The indurated points had softened.

23rd.—The amendment continues. The posterior half of the inner surface of the arm is the only point which has retained a reddish hue.

24th.—The indurated points were incised, and gave issue to a small quantity of creamy pus. The two abscesses are connected by a band of indurated tissue, from four to five centimetres in width, and formed almost exclusively by the skin, thus giving evidence that the case was one of inflammation of the lymphatics, and not of subcutaneous phlegmon.

## HOPITAL LA PITIE.

### NATURE AND TREATMENT OF ANTHRAX.

(Under the care of Professor **Richet**.)

M. **Richet** devoted one of his recent clinical lectures to the consideration of the above subject, *apropos* of a patient who was then in his wards. The case was that of a man, aged forty-seven, in miserable condition, and reduced to a state of complete emaciation through distress and starvation. Three tumours covered almost the whole of his back. One of them, as large as the open hand, occupied the situation between the scapula and the spine; another, of equal size, occupied nearly a corresponding situation on the opposite side; the third, even larger than the other two, extended over the lower part of the back. Only the last of these tumours showed signs of profound inflammation. It bulged slightly, was surrounded by a reddish circle and the neighboring tissue was somewhat tumefied.

M. Richet does not agree with those who divide anthraces into two kinds—the benign and the malignant. With the surgeon of La Pitié there is no such thing as malignant anthrax; because the idea of malignity involves that of contagion and inoculability, and this is not the case in so-called malignant anthrax. M. Richet simply divides these tumours into simple anthrax, and anthrax complicated with diffuse phlegmon. To this latter kind the term "malignant" is wrongly applied. It is far from being malignant, since it heals invariably when properly treated; whereas charbon, with which it has been compared, heals only when destroyed *in toto* and from the outset. With regard to the etiology of anthrax, M. Richet establishes a difference between those tumours which are observed on debilitated subjects (the common inmates of hospital wards), and those which develop in robust, well-nourished people. A third category of patients would comprise those affected with diabetes.

In considering the treatment of anthrax, M. Richet said he would distinguish three groups of surgeons: those who believe in the malignity of anthrax; those who do not; and those who retain a neutral position. The supporters of the first opinion are for removing the whole of the tumour. Now, according to M. Richet, a small anthrax may be excised; but how could we remove a vast tumour extending, for instance, over the whole lateral surface of the neck? Total ablation must be out of the question in these cases; and this mode of treatment M. Richet designates generally as *ferocious*. Another group of surgeons (those who remain neutral) institute a medium sort of treatment, which is yet very severe. First they incise the tumour, and then they apply caustics. Some have recourse to perchloride of iron, others to tincture of iodine; others, again, employ more energetic caustics, such as the actual cautery, &c. These cauterisations generally succeed; but they are invariably attended by most marked deformities. M. Richet condemns the use of the tincture of iodine or of perchloride of iron, as they paste the lips of the wound, and thus act as an impediment to the escape of pus. The third group of surgeons—those who are convinced that the disease is simply inflammatory—are not agreed with regard to the surgical means which are to be employed in anthrax. On the one hand may be mentioned M. Alphonse Guérin and the late Velpeau; on the other, M. Nélaton and M. Richet. M. Guérin, acting on the subcutaneous method, introduces the tenotome, and divides the tissue compressed by the anthrax. M. Richet condemns this practice. Velpeau used to make a crucial incision, and then a circular incision, carrying the bistoury around the tumour. M. Richet thinks that this method savors somewhat of total abilation, and therefore condemns it with the others. Nélaton's method is that which he considers best. It consists in splitting the tumour with several incisions which radiate like the petals of a flower. With regard to M. Richet's own practice, the following are the rules which he lays down, and with which he concluded his lecture: If the anthrax is of a simple kind, and is confined to the skin, the surgeon need not interfere. Such cases heal spontaneously. When the subcutaneous cellular tissue is involved, and passes thus into diffuse phlegmon, incisions must be made according to M. Nélaton's plan. The subcutaneous tissue must be carefully divided down to the muscles—which may be felt with the extremity of the finger through the wound. Hæmorrhage may be easily arrested by the application of some lint, and by slight compression. Poultices and tepid baths must then be employed. The general condition of the patient must not be neglected. If he is weak and emaciated, a restorative treatment must be adopted. If he is a robust man, he must be bled, purged, or even submitted to the administration of tartar emetic, &c. Pursuant to these principles, the Professor opened only one of the three tumours above described—namely, the lower one, which showed signs of profound inflammation.

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**Beaumont Medical Society.**—A meeting of the above Society was held on the 7th May, the president, Dr. Herbert Davies, in the chair. A discussion was opened by Dr. R. Bentham on the inadequate remuneration of medical men for their attendance upon sick clubs. He dwelt upon the "contract system" and its scanty remuneration, the great need there was for practitioners being united to suppress this evil, and the necessity of fixing a minimum charge for which the office of doctor to a club should be accepted. After a free discussion of these topics, the meeting strongly recommended that the sum of four shillings per member per annum be the very lowest sum for which the office of club doctor should be accepted; and that the members of the Beaumont Medical Society should help as far as possible to raise the standard of payment for medical services rendered to sick clubs or benefit societies. A vote of thanks to the Chairman terminated the meeting.

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# Medical Societies.

JULY—AUGUST.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Mr. Samuel Solly, F.R.S., President.

### A CASE OF CYSTIC DISEASE OF KIDNEY SIMULATING OVARIAN DISEASE.

BY HENRY COOPER ROSE, M.D., F.L.S., ETC.

C. R——, a rather delicately constituted young lady, discovered a tumour about the size of an orange in the situation of the left ovary when at the age of thirteen. About this period she menstruated for the first time, and continued to do so at intervals of three or four months for some years. She suffered also from hæmaturia occasionally, but in the early stages never mentioned the fact. She came under the author's care in January, 1856. The tumour at that time appeared solid, no fluctuation being perceptible. The tumour gradually increased until July 22nd, 1865, when it extended from the pubes and Poupart's ligament on the left side to the ribs, and reached beyond the median line of the abdomen considerably.

Fluctuation was now very perceptible; and, equidistant between the crest of ilium, umbilicus, and ribs, a prominent point presented itself, over which the skin was thin, livid, and very tense. Through this point Dr. Rose introduced a trocar, and evacuated seven pints of sanguineous clotty fluid. A large mass was still felt in the abdomen, apparently partly solid and partly multilocular. She remained very faint and low for some time, but in the course of about two years she had so far recovered as to be able to walk two or three miles, or play croquet for three or four hours at a time. The fistulous opening made by the trocar remained patent during the remainder of her life, giving vent to semipurulent fetid fluid, varying in quantity from one to several ounces daily. No hæmaturia or pain took place after the tapping, and the tumour gradually became reduced to the size of a man's fist.

About August, 1867, anasarca of the legs took place, and albumen was abundant in the urine. Nausea, sickness, and headache supervened, and she gradually sank on October 29th, 1867, retaining consciousness to the last hour or so.

Many professional opinions were obtained on the case, and all were led to diagnose ovarian disease with complication.

The post-mortem examination revealed a large cystic kidney on the left side, with total destruction of the secreting portion; and the right kidney was undergoing yellow degeneration, and was enlarged to twice its normal size.

The chief points of interest in the case arise from the fact of its exhibiting a series of symptoms perfectly compatible with the belief in its ovarian origin; its existence for so long a period (fifteen years); the absence of elements of urine in the fluid evacuated by the tumour; and the ultimate relief afforded by the puncture through the abdominal walls of so large a cyst, together with the comparative freedom from suffering and inconvenience, notwithstanding the large amount of disease found after death.

Dr. Symes Thompson narrated a somewhat similar case which had been under the care of Dr. Todd. A woman, aged thirty-four, with a distended and fluctuating abdomen, came into hospital. There was a central tumour, which had first been on the left side. Dr. A. Farre thought it was not ovarian from the condition of the uterus; Dr. Todd that it was a multilocular cystic enlargement of the ovary. On dissection, the uterus and ovaries were found to be healthy, whilst the swelling was found to proceed from the left kidney, which it had superseded. It weighed, without fluid, 40 lbs.

In reply to a question from Dr. Hare, it was stated that the suprarenal capsules were not much enlarged. Dr. Hare then proceeded to state that eighteen years ago he saw a cystic swelling in a male subject, and thought it renal. He again saw him with Dr. Bright, when it was much enlarged, and divided into two parts by a resonant band. Still it moved as one mass. The resonant band was the colon, and he thought its presence sufficed to diagnose such tumours from enlargements of the spleen. He also exhibited a number of excellent drawings illustrating this condition in various cases. Sometimes the enlarged suprarenal capsule gave rise to some difficulty. He thought that in the case narrated the persistent hæmaturia should have excited attention.

Dr. S. Thompson remarked that the colon in the case narrated by him was in front of the tumour, but completely flattened.

Dr. Hare said that, even so, air and fæces might be noticed passing downwards.

Mr. Spencer Wells said there were occasional exceptions to the rule that large tumours of the abdomen, with intestine crossing them in front, were renal, and not ovarian. Dr. Keith, of Edinburgh (who was then present), had seen two cases, and he (Mr. Wells) had seen at least six, where ovarian tumours were crossed in front by adhering intestine. It might not be detected at one examination, because the intestine might be empty; but patients were generally conscious of the passage of air and fluid. A peculiar cord-like roll was produced when the intestine contracted under the pressure of the hand, and if doubt were still felt a long tube might be passed up the rectum, and air blown in from bellows. In this way the intestine might be inflated, and tympanitic resonance became manifest. The diagnosis in the case brought forward by Dr. Rose was unusually difficult, because it was supposed than an ovarian cyst was spontaneously emptying itself through the bladder, and when it became necessary to tap the cyst the fluid evacuated contained none of the constituents of the urine, nor anything confirming the suspicion that the cyst might be renal. So with some of the cases which he (Mr. Wells) had published in the *Dublin Journal*. The urine was quite normal, because the diseased kidney had ceased to secrete, and the other kidney was healthy. In a large tumour, weighing between thirty and forty pounds, which he had brought before the Pathological Society, with several renal calculi from the pelvis of the kidney, the tumour had filled the whole of the abdomen, and descended into the pelvis. He had seen other tumours of one kidney which had extended across to the opposite side of the abdomen, and also downwards into the pelvis. In one case which he had seen recently with Mr. Keyser, the tumour was so distictly not pelvic in its early stage that a very distinguished physician said it could not be ovarian. But a year later the same physician wondered that he could ever have doubted that it was ovarian, because it seemed so closely connected with the uterus. In this case the cyst was tapped, and a very competent observer, finding colloid bodies and epithelium in the fluid, expressed a strong opinion that it was ovarian. On making an exploratory incision he (Mr. Wells) found a large renal cyst, emptied it, sewed the opening in the cyst wall and abdominal walls together, introduced a drainage tube, and the result was a perfect cure. So in one of his published cases, tapping and drainage led to the complete recovery of a patient with a renal cyst. Simple tapping seemed to be of little use, while tapping and drainage offered very encouraging promise of success in cases otherwise incurable.

## AN ATTEMPT TO APPLY CHEMICAL PRINCIPLES IN EXPLANATION OF THE ACTION OF REMEDIES.

### CHEMICO-THERAPEUTICAL GROUPS: A DEDUCED TEST-HYPOTHESIS, ILLUSTRATED BY ARSENIC AND IRON AND THEIR ALLIES.

BY W. H. BROADBENT, M.D.

The author starts with the postulates:—

1. That there must be some relation between the substance administered and the human organism on which the effects produced depend.

2. That so far as the substance is concerned, the basis of this relation can only be its chemical properties, using the term in its widest sense.

From these postulates certain corollaries follow:

1. That the physiological and therapeutical actions of the same substance must be similar in kind.

2. That the action of foods, medicaments, and poisons in the system must be capable of explanation on the same principles.

3. That substances closely allied chemically must have an analogous action on the system, or the diversity of their operation should be capable of explanation on chemical principles. In other words, chemical groups ought to form therapeutical groups.

These considerations furnish an opening for the application of chemical principles in the explanation of the action of medicines, and the last constitutes an hypothesis which can be brought to the test of experiment.

Looking at the substances employed in medicine from the point of view suggested by these corollaries, a contrast is found to exist between organic and inorganic medicaments similar to that between organic and inorganic foods. The organic constituents of food, after entering into the composition of the blood and tissues, are oxidised with evolution of force; the inorganic matters do not yield force by undergoing oxidation, but in some way, not thoroughly understood, influence the nutritive processes. Organic medicines seem to act chiefly through the nervous system, and to effect the evolution of force, undergoing oxidation the while; inorganic medicines seem to modify the nutritive or organic operations, passing out of the system for the most part with little change.

The two classes of operation spoken of, the nutritive or constructive, and the force-evolving or destructive, are mutually interdependent, but distinct and antagonistic. It is not easy to define their respective range of influence; but nutrition, being antecedent in time to oxidation, and by its perfection or imperfection modifying this process, must be accounted the most important, and so-called errors of oxidation may be due to antecedent errors of nutrition.

The present attempt to apply chemical principles in explanation of the action of remedies will be limited to inorganic medicines and their influence on the general nutritive processes.

In doing this it will be necessary to consider:—

1. The general chemical properties of the body: (*a*) the energy and direction of the affinities of the group to which it belongs; and (*b*) the energy of these affinities in the different members of the group.

In few instances, however, is therapeutic action *directly* traceable to chemical properties, and therapeutic effects are by no means always in proportion to chemical energy. Dr. Odling's explanation of the latter fact, though a most valuable suggestion, does not go very far. If it accounts for the difference in the action of a chemically mobile body, as compared with a chemically energetic member of the same group, it in no way explains the very diverse effects of different mobile substances. We must look, then,—

2. To the special relations of the substances administered with the organic proximate principles composing the blood and tissues. The mineral matter contained in the solids and fluids must be borne in mind.

There are four great classes of nitrogenised proximate principles:—1, albumen, the general plasma; 2, the syntonin of muscle; 3, the protagon of nerve; 4, the gelatine of the connective structures. The inquiry as to the action of the various inorganic substances on each of these is of vast magnitude, and can only be just touched upon. It may be illustrated by the coagulation of albumen. The salts of the alkalies are antagonistic to this change; the salts of the metals at the opposite end of the series induce it. Mixed with the albumen of the blood they must differently affect its readiness to enter into the nutritive operations. Coagulation implies affinity of the mental for, and its combination with, the albumen, and different degrees of affinity of the various metals for one or other of the proximate principles explains what is called the specific influence of a given substance on a particular tissue or function, and its "determination" to a particular part or organ.

Some of the compounds formed by the union of metallic salts and organic matters are very stable, and as they do not undergo putrefaction, the salt is said to have an antiseptic influence. Antiseptic action, in some of the various significations in which the term has been used, has been made the basis of an erroneous *rationale* of the action of certain remedies, which there is not time to refute.

But coagulation is only a rude and imperfect exemplification of the reactions between mineral matters and the organic constituents of the body. A consideration going much further is,—

3. The constant presence in the blood and tissues of certain salts,—those of iron, soda, potash, lime, &c.

We usually say a given salt serves certain purposes in the economy, and that therefore it is present. The real order of causation is the converse of this. It is present because of affinities between it and the organic constituents of the blood and tissues, and it is in virtue of these affinities that it is of service in the organic processes. The existence in the body of a particular mineral substance as a normal constituent is thus an indication (*a*) of affinities between it and the organic proximate principles: and (*b*) that the influence of these affinities is favorable to the nutritive processes.

4. More knowledge of the same sort is obtained by an application of similar principles in the case of the excretions. In these are found the products of the oxidation which has yielded force, and the mineral substances which have influenced the nutritive processes; and from an examination of them several obvious conclusions may be drawn: (*a*) as to the amount of organic matter oxidised; (*b*) as to the effects of different substances on metamorphosis; (*c*) as to the affinity between mineral and organic matters.

The channel of separation of the various excretory substances seems to be determined very much by physical conditions; gases passing off by the lungs, volatile fluids by the skin, soluble non-volatile substances by the kidneys.

As great importance is attached to the eliminant action of increased excretion, it is necessary to bear in mind the various conditions on which this increase may depend, and especially that it may be due to an antecedent action on the blood and tissues generally by the substance which has brought about the result.

5. Still another method by which the influence of substances used as remedies upon living structures may be manifested is their action when applied topically,

In the remaining portion of the paper the principles laid down are briefly and imperfectly applied to the chemical groups represented in therapeutics by arsenic and iron, the principle object in treating of them being to illustrate the third corollary, or the hypothesis of chemico-therapeutical groups. The line of investigation taken has been as follows. Given a distinct and well-ascertained physiological or therapeutical effect, can results in any measure analogous be obtained from the chemical allies of the substance producing it?

The arsenic group comprises phosphorus, arsenic, antimony, and bismuth, the chemical analogies of which are among the most striking known. Excluding bismuth, which from its feeble affinities and tendency to form insoluble compounds may be considered inert, these bodies present analogies in their physiological and therapeutic action as striking as those of their chemical properties.

The only point in which the similarity of therapeutic action remains to be established is in skin diseases, in which arsenic is a remedy of known power. Evidence (confessedly insufficient) is brought forward on this question. The satisfactory progress of three cases of severe eczema under the use of phosphorus seems to promise that this substance will be a valuable addition to our means of treatment in this class of cases.

In the iron group the metals experimented with have been chiefly manganese and nickel. Cases of extreme chlorosis have recovered while taking these, as substitutes for iron, in the hospital iron and quassia mixture. It is not supposed that they will in any way supplant iron, but it is hoped that practical therapeutics will reap an advantage in the addition of one or other of these metals to iron in certain cases, as has long been advocated by Pètrequin and other French writers.

After some discussion, it was determined, on the motion of Dr. Salter, to postpone the debate on this paper.

### A HISTORY OF SEVEN CASES IN WHICH A MORBID GROWTH WAS REMOVED FROM ONE OF THE VOCAL CORDS BY THE AID OF THE LARYNGOSCOPE.

BY GEORGE JOHNSON, M.D.,

Physician to King's College Hospital.

For the diagnosis and successful treatment of morbid growths within the larynx, the use of the laryngoscope is essential. In several of the cases recorded, the patient had been subjected to a long and fruitless course of medicinal treatment before the nature of the disease was ascertained by the use of the mirror. The instrument used for the removal of the growths is an écraseur. Dr. Thos. J. Walker, of Peterborough, was the first in this country to remove a growth from the larynx by means of a wire loop. An improved écraseur was subsequently made by Messrs. Weiss for Sir D. Gibb. The instrument employed by the author is a modification of Sir. D. Gibb's, made also by Messrs. Weiss. The écraseur is a very soft and harmless instrument. Unlike the laryngeal forceps, it rarely tears the mucous membrane, or seizes any other object than the growth to be removed. The wire imbeds itself in the morbid growth, thus retaining a firm hold, and bringing the pieces away:—

Case 1.—J. W——, aged forty-nine, a cabinet-maker; has had hoarseness for twenty years, during ten of which he was almost constantly taking medicine. A warty growth, the size of a mulberry, on the right vocal cord; nearly the whole growth removed. The voice still feeble and husky on account of a general roughness of both vocal cords.

Case 2.—W. F——, aged fifty. Feebleness of voice for more than a year. A vascular growth at the anterior insertion of the right vocal cord. This proved to be a cyst, which was ruptured by the wire, and the power and original clearness of the voice were restored.

Case 3.—J. G. C——, aged fifty-nine. Hoarseness for about nine months. A wart the size of a small pea at posterior end of right true cord. Its removal left a slight thickening at the original seat of the growth. The voice is somewhat gruff and reedy, but much stronger than before.

Case 4.—J. L——, aged twenty-six. Hoarseness for many years, and therefore a suspicion of consumption. A wart the size of a small pea near the anterior insertion of the right vocal cord. Complete removal followed by perfect restoration of the voice, which remains clear and strong.

Case 5.—J. W——, aged sixty-eight, a surgeon had been hoarse for nine months, his voice being extremely feeble. A conical wart, the size of a pea, at the anterior end of the right cord. A small piece was removed by the wire; the growth then rapidly disappeared under the influence of applications of a solution of nitrate of silver. The voice is clear and strong.

Case 6.—W. A——, aged eight, has been hoarse from infancy, and has had much medical treatment. A wart on the right vocal cord occupied about one-third of the opening of the glottis The greater part of the growth has been removed and his voice has become much stronger and clearer; but a small portion of the growth remaining, renders him still somewhat husky.

Case 7.—A gentleman, aged forty-eight, had suffered discomfort in his throat for twenty years. In May, 1862, Czermak examined him, and discovered a wart on the right vocal cord. Since May, 1866, he has been very hoarse. The tumour was completely removed on the 2nd of January, 1868. The voice immediately became clearer and stronger. In a note written on the 20th of March, he says:—"I am happy to say my voice is all that I could wish. You may put me down as a perfect cure."

Preparations of the growths removed were exhibited to the Society.

Mr. White was glad to bear testimony to the valuable service done him by Dr. Johnson His uvula had been excised as a preliminary by Mr. Holt. After a time, Dr. Johnson succeeded in snaring the growth, and he had now completely recovered.

Dr. Morell Mackenzie said he had considerable experience in the removal of laryngeal tumours, and in his opinion no single instrument was adapted for all cases. The facility and success of any mode of treatment depended on the origin of the tumour; if pedunculated its removal would be easy, not so if it were sessile. In most instances he thought the forceps most useful; in others, as in cystic swellings, the lancet was best: sometimes, also, the scissors were best. Still, Dr. Johnson's modification was very useful. He had tried crushing with great success—perhaps he ought rather to call it pinching,—especially when the tumours were hard or of hard origin, as atrophy followed. In one case the growth was situated under the vocal cord, where he could not get at it; he had, indeed, long thought of operating from below, but one day he managed to seize it, after which it atrophied, and soon disappeared. He congratulated Dr. Johnson on his results, especially in the last-mentioned instance, which had been under his own care. He did not then think it a case for operation.

Mr. Durham thought the instrument ought always to be adapted to the case. The snare was good in many instances, as when the tumour was projecting at right angles from the vocal cords. Often, however, they stood perpendicularly upwards, or upwards and inwards, when it was difficult to place the wire over them. In all Dr. Johnson's cases the tumours had been small. This was a very different condition from that in which the aperture was filled with growths. Then he thought tracheotomy ought to be performed, the larynx laid open and the growths removed. The day before he had seen a girl on whom he had so operated two years ago. She had then been voiceless for five years, and breathed only by a tracheotomy tube. She could breathe naturally in ten days, and in three weeks was quite well. This, he thought, was better for a child than to have forty or fifty operations, as the proceeding was quite safe.

Mr. Couper felt disposed to agree with Mr. Durham where the tumours were numerous. He had operated in one case before, when the patient did well. He used the scissors and forceps, and whereas there were commonly made two stages in the proceeding, the tracheotomy and subsequently the laryngotomy, he performed both at once.

Dr. Johnson, in reply, said he thought the snare best adapted for cases where soft warts projected from the vocal cords. The forceps always catch the mucous membrane. One gentleman he had seen was thus torn abroad.

### ON SOME RESULTS OF DISEASES OF THE ARTERIES.

BY HENRY LEE, F.R.C.S.,

Surgeon to St. George's Hospital.

In the last volume of the Transactions it had been shown that wounds in arteries were repaired by means of a fibrin-like material deposited from the blood. This material was shown to be rich in globules resembling the white corpuscles of the blood, undergoing division and multiplication. The material which closes a wounded artery was found to consist of these cells and of matter formed from them. In healthy union, only so much of this material was found to be deposited as was necessary to close the wound; but when union was not effected by first intention, then a very much larger quantity of matter might be effused.

The author draws a comparison between immediate union and suppuration on the surface of the body and healthy and unhealthy union of injured blood-vessels. The surplus material not required for union on the surface of the body is thrown off in the process of suppuration. When an analogous action takes in bloodvessels, the surplus material is liable to become mixed with the blood, and sooner or later to be carried in the course of the circulation. The secondary effects of such a process must be looked for in internal organs when a vein has been the seat of the disease, but in the extremities when the artery of a limb has been similarly affected. Cell growth which has commenced in a vessel by multiplication and sub-division of corpuscles may be continued when the material in which it is taking place has been transferred to a distance. The results of such an action had been traced with regard to the veins, but the results of analogous actions when they take place in arteries had not received a like share of attention.

The diseases of arteries consist principally in steatomatous and atheromatous degeneration of their coats. The products of these diseases when softened, become mixed with blood. But it has been shown that fatty matters circulate with great difficulty through capillary vessels. Some of the fluids poured into the cavities of vessels have the tendency to favor the coagulation of the blood, and in some the débris of the arterial coats themselves may offer impediments to the circulation. These were the conditions under which gangrene of the extremities often presented itself; and to the vitiated condition of the blood, and to its coagulation in the capillary tubes, the author attributed the gangrene in the great majority of cases, rather than to the want of blood, as maintained by the generality of authors or to inflammation of the arteries, as supposed by Dupuytren.

Three cases are detailed, and drawings given of extensive disease of the lining membrane of the aorta. In the first of these the products of the diseased internal coats of the artery appeared to have circulated through the lower extremities without producing any local irritation. In the second the morbid matter had produced coagulation of portions of blood in the aorta itself, and in a much greater degree in the vessels of the right limb, the extremity of which had mortified. In the third case the capillaries only appear to have been obstructed.

The mildest form of the disease which the author had witnessed consisted of an affection resembling a very painful soft corn. The cuticle over the part became ragged, and when removed exposed several small black spots on the cutis. Two cases in which this had occurred had been particularly noticed.

A case was then given in which nearly the whole of the pancreas and cellular substance between the coats of the gall-bladder were softened and converted into a jelly-like substance. This had occurred in conjunction with very extensive disease of the aorta.

Five cases were then referred to of what the author called, "chronic local multiple abscesses." In the first of these cases the disease followed the course of the distribution of the fibular artery, and was limited to the outside of one leg. There was here a history of specific constitutional disease. There was no such history in the next two cases, in which the disease was accompanied by considerable enlargement in the popliteal space. In one of these the enlargement had gradually increased for twelve months in the other it remained up to the time the case was recorded.

The fifth case was of interest on account of the disease having apparently been communicated. The products of disease liable to be transmitted through the arteries, and originating in ulceration of their coats, were:—1. Débris, of the arterial tissues. 2. Fatty matters in a state of degeneration. 3. Portions of fibrin in which cell development was still going on. 4. Coagula of blood formed in connexion with, or independently of, any of the preceding.

The results mentioned as arising from these conditions were:—1. Gangrene. 2. Softening. 3. Solid œdema. 4. Chronic multiple local abscesses.

Mr. Birkett remarked that cases such as those described were common in hospital practice. The last narrated was the most obscure. Query: Was it syphilitic.

Mr. J. D. Hill narrated some cases of aneurism and other diseases of the arteries, there being in some a syphilitic history.

Mr. Lee, returning thanks, said no doubt syphilis frequently predisposed to disease of the arteries and to ulcerations, but that in no way did away with what he said. He only contended for the arterial origin of these sores.

## CLINICAL SOCIETY OF LONDON.

Dr. C. J. B. Williams, Vice-President, in the Chair.

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Mr. C. Heath read the report on Mr. Holthouse's example of rheumatic arthritis, from which it appeared that the committee was divided in opinion as to the exact nature of the case.

A case was related by Dr. Marcet, in which dumbness, associated with dysphagia, and occasional spasmodic contractions of the muscles of the fauces, of fifteen months' duration, had apparently disappeared after the application of the interrupted induced current to the larynx.

A report on the same case was then read by Dr. Buchanan, on behalf of the committee to whom it was referred at the previous meeting. After careful investigation, the committee found reason to believe that the patient had been speechless for many months, but were not able to satisfy themselves that he was unable to speak.

Dr. Morell Mackenzie regarded the case as one of those in which the power of bringing certain groups of muscles into combined action is lost, not in consequence of any disease either of the muscular apparatus itself or of the nervous centres presiding over it, but as a result of disordered volition. In illustration, he referred to the case of a sailor, otherwise in good health, who, in consequence of a blow on the head received when at sea, suddenly lost his voice. Dr. Mackenzie ordered him to take an inert medicine three times a day, assuring him that he would be cured. After a few days he recovered his speech. Here, as in Dr. Marcet's case and in other instances which had come under his notice, the good effect of the remedy employed had no relation to its therapeutical properties.

The President regarded the case in the same light as Dr. Mackenzie. He had under his observation a woman, by no means of a fanciful or hysterical tendency, in whom loss of vocalisation and articulation lasting for several days could be produced at any moment by an unexpected slap on the back. It was soon found that the voice could be restored by electrical shock from a Leyden jar, and subsequently by a less violent stimulus with equal success.

Dr. Barclay referred to the case of an epileptic child of defective intelligence now in his wards in St. George's Hospital who, being unexpectedly tapped on the spine, or touched on the shoulder, became suddenly convulsed, and, if standing, fell at once to the ground. The effect was very transitory, and was neither accompanied nor followed by unconsciousness.

Mr. Holthouse, in relating a case of Chronic Rheumatic Arthritis, remarked that he felt some difficulty in giving a name to the disease described, and though he had ventured to call it Chronic Rheumatic Arthritis, he did so with hesitation, because it differed in many repects (which he pointed out) from that disease, and partook of many of the characters of a nervous disorder. The chief feature of interest in the case consisted in the gradual and increasing lameness of the patient, from a slow drawing up of the right thigh towards the trunk, attended with an absolute shortening of the femur to the extent of an inch, and great fixation of the hip-joint without muscular rigidity. The above changes had been going on for the last nine years, unaccompanied with the slightest constitutional disturbance, or any pain, tenderness, or suppuration about the hip; only in its first accession the patient was subject to what he calls cramps in the limbs, which occurred every two or three weeks, lasted for a few minutes, and then went off. Mr. Holthouse suggested that there might be coexisting in his patient a joint and nerve disease, giving rise to a combination of symptoms which, so far as he knew, had not been hitherto described.

Dr. Greenhow related a case of Locomotor Ataxy, or, as he preferred to call it, of Motor Asynergy. The case was referred to a committee consisting of Dr. Buzzard and Dr. C. Bastian.

Dr. Hillier narrated a case of Infantile Ascites associated with distension of the venous system. After some conversation, in which Dr. Barclay, Dr. Stewart, and Dr. Wiltshire took part, the case was referred to Dr. Marcet for a chemical examination of the liquid which had been withdrawn from the peritoneal cavity.

Dr. Anstie related a case in which, although most of the physical signs were of such a character as to indicate dilatation of the ascending aorta, there were other facts (particularly the extreme feebleness of the carotid and radial pulses) which rendered the dignosis difficult and doubtful. The case was referred to a committee consisting of Dr. C. J. B. Williams and Dr. Sanderson.

Mr. Henry Lee read the history of a male, aged thirty-five, who died from tetanus, after amputation at the thigh. The femoral artery had been controlled by acupressure for three days. The canal was found to be filled with a firm, closely-adhering clot; the lining membrane was red near its cut extremity, where it was subject to pressure, but it presented no sign of any effusion of lymph upon its surface. This showed, he thought, the error of supposing that two sides of an artery will unite if held in contact; such union will only take place at the cut extremity, the clot arresting bleeding until the permanent repair is completed.

In the present case, the whole surface of the stump was sloughing, and yet hæmorrhage from the femoral artery was completely commanded, after the removal of the needle, by the clot which had formed in its interior, and by the amount of repair at its cut extremity. Mr. Lee had, on the whole, been satisfied with the results of treatment by acupressure, though he had never been able to procure comple union, such as is said so often to occur in Aberdeen.

Mr. Henry Lee related a case illustrating the use of Calomel Vapor-baths in the treatment of Chronic Syphilitic Albuminuria. The patient had been under different kinds of treatment for two years, and recovered completely after using the baths for six months. After referring to the doubt which had been raised as to the absorption of the mecurial vapor by the skin, Mr. Lee dwelt upon the necessity for acting upon the skin at the same time by the addition of the vapor of water, and recommended the mercurial bath in the early stage of syphilis, and especially advised its use in cases of extreme debility in which mercury could not be employed in any other form.

Mr. Maunder, the President, and Dr. Wilks put some questions to Mr. Lee, which led that gentleman to refer to the difficulty which existed in determining how much in these cases was due to syphilitic and how much to other diseases of the kidneys. He usually in such cases had employed the bath after other remedies had failed.

Dr. Baumler related a case somewhat similar to that referred to by Mr. Lee, which recovered under the influence of large doses of iodide of potassium.

Mr. Hulke remarked that the influence of the nitro-muriatic acid should be borne in mind, as it was one of the remedies employed in Mr. Lee's case,

After some remarks by Dr. Drysdale and Dr. Wiltshire,

Mr. Durham read the history of a comminuted and secondarily Compound Fracture of the lower end of the Femur, extending to the knee-joint. The patient, who was present, recovered perfectly, and whilst, considering his youth, it was probable he might have recovered from the serious injury he had sustained, Mr. Durham doubted if he would have recovered so rapidly as he did but for the treatment of the wound with carbolic acid. He had extensively and fairly tried the carbolic acid treatment in compound fractures, and other cases, but he had not met with such brilliant success as Professor Lister; he thought, however, this result was in some measure due to the more or less depraved health of the patients dealt with in the London hospitals.

Mr. DeMorgan read a paper on the Use of Chloride of Zinc Solution in the treatment of Abscess connected with diseased joints, insisting upon the utility of antiseptics in general, which he considered a great boon in the treatment of hospital patients. At the Middlesex there had been a remarkable diminution in the number of cases of pyæmia and erysipelas occurring in the wards since these remedies had been generally used. The chloride of zinc seems to form a coagulum over the wound, and this is incapable of decomposition, and fluids in the wound are thus kept free from taint. After some remarks respecting the causes of putrefactive decomposition, he mentioned several cases in which abscess was treated with the chloride under the most unfavorable circumstances. Their cure had been as rapid as could be the case in abscess of the same extent in the most healthy persons placed under the most favorable conditions. The cases related were chosen simply because they all happened to be in the hospital at the same time.

After some remarks by Mr. Arnott,

Mr. Hulke bore testimony to the good results which followed the use of chloride of zinc.

Dr. Wilks, after referring to the use of somewhat similar remedies in times past, spoke of the superiority of those now commonly employed.

Mr. Henry Lee noticed the difficulty of using these remedies in cases of osteo-myelitis, cases which are so often followed by pyæmia.

Mr. Croft had found the liquor carbonis detergens a very useful antiseptic.

After remarks by Mr. Maunder and Dr. Hillier,

Mr. DeMorgan referred to the older remedies, but such he observed were not remedies for destroying decomposition in wounds, nor were they used as injections into the cavities of the abscesses, but were rather employed as coverings for crushed and lacerated tissues.

Mr. Callender (for Mr. West of Birmingham) related a case illustrating the use of acupressure after amputation of the thigh.

After some remarks by Mr. Bryant and Mr. DeMorgan, the latter gentleman mentioning a plan for passing the end of the ligature thread through the soft parts, away from the wound.

Mr. Callender described the condition of the parts about and in the femoral artery, upon which a needle had been applied.

Mr. Maunder and Mr. Arnott referred to some remarks made by Mr. Lee at the last meeting of the Society, with reference to the union of the cut ends of the vessels..

A report by Dr. C. J. B. Williams and Dr. Sanderson was read on Drs. Cockle and Anstie's case of Disease of the Thoracic Aorta. The patient, a corpulent man of forty, had suffered for many years from giddiness and vertical headache. Of late these distressing symptoms had increased, in addition to which his powers both of body and mind had become impaired to such an extent that he was incapable of following any occupation. With reference to the physical signs, the following facts were observed by the authors, and verified by the reporters—viz., extreme feebleness of the radial pulse, absence of sensible pulsation in other arteries; natural extent of precordial dulness; dulness with expansive pulsation of space as large as a florin, situated immediately to the right of the sternum, between the second and third cartilages; a systolic bruit heard over the whole of the front of the chest, loudest at the seat of aneurismal impulse; second sound of natural character, and remarkably distinct to the left of the sternum, but occasionally grating at the seat of pulsation. From these facts the reporters concluded that the aortic valve is incompetent, that the aorta is dilated immediately above the sinuses of Valsalva, that beyond the dilatation the aorta is narrowed, that the heart is not hypertrophied, and that the general symptoms are mainly attributable to diminished supply of blood to the nervous centres. No opinion was offered as to the exact nature or origin of the obstruction, which the reporters regarded as probably antecedent to the dilatation.

A discussion followed, in the course of which Dr. Sibson, after expressing his general concurrence with the conclusions arrived at, pointed out that the position of the aortic impulse afforded evidence that the dilatation was slight; for if the aneurism had been considerable, the dulness and pulsation would have extended much further to the right of the sternum.

Mr. Bryant drew attention to the value of tracheotomy as a remedy for chronic laryngitis. He would perform the operation at a comparatively early stage of the disease, and by so doing anticipate the risk of permanent damage to the larynx. An argument in favor of this procedure existed in the unsatisfactory results which followed other plans of treatment. It should not, however, be resorted to until a fair trial had been made of ordinary remedies; at the same time it was undesirable to leave the operation until the disease had advanced too far. Give the larynx by this operation what is termed physiological rest, and there would be good prospect of recovery.

Mr. DeMorgan, after referring to a case which had been under his treatment, agreed generally with the desirability of operating in these cases at an earlier period than that usually advocated.

After Dr. Sibson had related an interesting case which had been under his observation, Mr. Erichsen expressed his concurrence in the view taken by Mr. Bryant. He pointed out, however, the difficulty of getting patients to submit to the operation. He thought tracheotomy tended to hasten the cure of certain laryngeal affections, and in this way he anticipated much good from the operation as a directly curative agent, the disease subsiding after the trachea had been opened. The operation on an adult he regarded as a trifling affair. With reference to the tube, he used those made of platinum, as requiring the least frequent removal.

Mr. Maunder hoped the attention of the profession would be directed to the advisability of the performance of tracheotomy in certain cases at a comparatively early period of the disease.

Mr. Thos. Smith considered there was some advantage during the progress of certain local diseases in the passage of a stream of air through the larynx, for if this is prevented there is always a risk of the larynx becoming permanently closed. He doubted if any good would follow tracheotomy employed as a remedy for the cure of ulcerative disease of the larynx, as he thought the air-passage would soon become so narrowed that the tube would have to be worn permanently.

After some remarks from the President, Mr. Bryant replied.

# Editorial.

## M. CHAUVEAU ON THE VACCINE VIRUS.

When the fluid of the vaccine vesicle is examined under the microscope it is found to consist of a clear transparent fluid, in which float two kinds of solid matter: leucocytes, which closely resemble, in all their essential features, the white corpuscles of the blood; and elementary granules, or minute particles, of much less definite form and structure. It is an exceedingly interesting question to determine whether the activity of the vaccine virus resides in the transparent serum or lymph, or in the organic particles which float in it; since if any positive conclusion can be arrived at in reference to this animal poison, it may with all probability be predicated of others.

In a recent paper read before the Academy of Sciences in Paris M. Chauveau has given the results of his experiments on this subject. His first efforts were directed to obtain the lymph perfectly free from the admixture of the organic particles; but this he soon found to be no easy matter, since, like the particles of tannate of iron in ink, they would neither subside when the fluid was at rest, now were they arrested by any ordinary mode of filtration. He succeeded in separating the leucocytes, however, by dilution and decantation. After the addition of about ten times the volume of water, and rest for twenty-four hours, a small quantity of clear fluid could be removed from the surface with a pipette, in which the most careful scrutiny with the microscope failed to detect any of these bodies. Nevertheless, inoculation even with this diluted lymph was perfectly successful. Here, then, was a proof that the activity of the vaccine virus does not depend on the leucocytes. But is it dependent on the elementary granules? In order to separate these, it suggested itself to M. Chauveau that he might adopt the principle of diffusion; and he accordingly made the following arrangements:—A small quantity of the pure vaccine lymph was placed at the bottom of a test-tube, great care being taken not to moisten the sides above the level of the fluid. On the surface of this, with as little disturbance as possible, were placed a few drops of distilled water. After the lapse of from twenty-four to forty-eight hours, as was to be expected, the saline and albuminous compounds were found to have passed, with a rapidity varying according to their diffusibility, from the inferior denser to the superjacent thinner layer; all the organic particles remaining in the former. When inoculation was practised with the superior layers free from solid and visible particles, no results followed, though the deeper layers in which the organites were present possessed the power in a very high degree. In every instance the actual diffusion of the albuminous compounds present, into the upper layer of distilled water, was ascertained by testing a small quantity with heat and nitric acid. From the results of these experiments, M. Chauveau believes himself able to state definitely that the clear fluid of the vaccine lymph possesses no power of inoculation; the activity residing entirely either in all or in some of the small insoluble particles which float in and accompany it. It will be observed that no membrane was here employed which could modify the properties of the virus. Additional arguments in favor of this view have been adduced by M. Chauveau, supported by the following train of reasoning:—If the potential energy reside in the fluid and not in the particles in suspension, dilution with water ought only to produce, in proportion to the extent to which the dilution is carried, a diminution in the effects observed, just as pepsine or diastase, when diluted, acts, with less energy indeed, but still with certainty, each in its proper mode. In other words, diluted vaccine lymph ought, if the dilution be not carried too far, invariably to inoculate, the effect however being much feebler than with the undiluted plasma. This would be a necessary consequence of the homogeneity of the fluid, its energy being equally distributed in every molecule. On the other hand, if the plasma be inactive, and all the energy reside in the organic particles held in suspension, then this energy would not really be homogeneously distributed through the fluid, since it is obvious that a chance drop might or might not contain some one or more of the potential particles, in the former of which cases it would, whilst in the latter it would not, prove effective. M. Chauveau's experiments with samples of lymph diluted in different proportions of distilled water were quite in favor of the view he had already been led to hold, for he was able to effect successful vaccination, though rarely, with lymph which had been diluted with even so much as 150 times its weight of water. With fifty times its weight it often failed, but with from two to fifteen times its weight it succeeded nearly as frequently as the pure lymph. When successful, even with the greatest dilution, the progress of the disease was identical with that effected with the pure lymph. Even with the higher degrees of dilution, moreover, if the entire amount was injected into the vessels, it generally succeeded. One important conclusion may be drawn from these experiments —namely, that, in case of scarcity of the lymph, dilution with ten times its amount of distilled water does not materially diminish its activity.

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## RECENT RESEARCHES ON VILLOUS ABSORPTION.

Two interesting papers on the Structure of the Villi and on the mode in which absorption is effected, have appeared in recent numbers of Virchow's "Archives," one by Ludwig Letzerich, the other by Theodore Eimer, who, however, hold views that are by no means in complete accordance. The exact structure of the epithelial cells covering the villi has long been a fruitful source of discussion amongst microscopists. They belong to the elongated or cylindrical type, are attenuated at their base, and dilated at their free extremity, where they present a circular seam, or thickened bandlike appearance, as though the border had been turned over in the fashion of a hem. The hem, which varies in depth, presents on a side view fine vertical lines, to which different interpretations have been given, some considering that they represent cilia, others that they are pores or canals by which the materials absorbed, and especially the oily constitutents of our food, make their way into the interior of the cell, and others that the extremity of the cell is closed by a plug of mucus, through which the oil-drops penetrate, leaving lines or tracks, which are the striæ in question. Equal difference of opinion exists as to the mode in which the attached extremity of the cells terminates, some holding that it is simply super-imposed upon the basement membrane without any continuity of tissue; others that it may be traced in the form of a fine, and sometimes branched prolongation, that penetrates the basement membrane, that ends by becoming continuous with the processes given off from branched cells lying between the surface of the villus and the central lacteal, with which they are also in communication. Heidenhain, in particular, states that he has followed minute oil-drops, in an animal fed with fat and after the lapse of a short period killed, through the cylindrical epithelial cells, through their prolongations into stellate cells, and finally through these into the central lacteal. Letzerich states that he has observed the striæ at the free extremity of the cells, but attaches little importance to their presence. He has been unable to follow the prolongation of the inner or attached extremity described by Heidenhain, and he is therefore opposed to the view that the cylindrical cells are the instruments by which absorption is effected. He believes he has discovered proper channels for this purpose, which may be seen in dogs, cats, mice, lizards, blindworms, frogs, carp, and even in invertebrate animals, as in the cock-chafer; but he particularly recommends the hedgehog for the purposes of investigation. The proper organs for absorption commence in the form of large roundish or pear-shaped bodies, interspersed amongst the cylindrical epithelial cells of the villi, and also, here and there, between the columnar cells lining the Lieberkühnian follicles. To these he has applied the name of *vacuôlæ*. They are not present in the stomach, large intestine, or rectum. They are apt to contract with cold, and are then scarcely visible, on which account the membrane should be allowed to remain for some time in a warm place before being placed in the preserving fluid (weak chromic acid solution). Towards the intestinal cavity the vacuolæ present open mouths with well-defined borders; they have a hollow body, and the attached extremity terminates in a plexus of vessels with distinct walls, which occupies the space between the surface of the villus and the central lacteal, into which the vessels discharge their contents. There is thus a free communication between the cavity of the intestine and the interior of the lymphatic system, through which the nutritive material may pass without let or hindrace. It is difficult to reconcile these statements with that power of selection which, from the observations of Tiedemann, Gmelin, and others, there is good reason to believe is exercised by the lacteals over the contents of the alimentary canal. It is not, however, surprising that Letzerich's observations should have led to further researches. Eimer has also subjected the structure of the villi to close scrutiny. He admits the presence of the vacuolæ of Letzerich, but considers that they are not limited to the mucous membrane of the small intestine, since he has found them on all mucous membranes, whatever may be the nature of the epithelium covering them. He calls them mucus or pus chalices; and states that they may be distinguished from the true epithelial cells by the action of acetic acid, which causes the former to become more sharply defined, whilst the latter first become pale, and ultimately dissolve under its influence. In the lower part, called by Schultze the stalk or foot of the chalice, a nucleus is generally present, around which some yellowish material is accumulated, probably of an albuminous nature. These chalice-like bodies stand in no relation to the function of absorption either of fat or of other alimentary substances. They rather seem—and Eimer is herein supported by the opinion of F. Schultze—to be organs for the secretion of mucus, which is in accordance with their wide distribution on mucous membranes. In a second paper written by Letzerich in reply to Eimer's strictures, he professes himself to be perfectly acquainted with the mucus-forming organs or chalices, having seen them on the tongue and elsewhere; but he contends they are wholly distinct from his absorption organs. And so for the present the controversy ends.

# Medical Annotations.

"Ne quid nimis."

## TIGHT-LACING.

We had supposed that it would never be necessary to reargue the question as to the defensibility of tight-lacing from a medical point of view. For many years past the fashionable advocates of this abominable custom have mainly relied upon that weak subserviency of a large part of womankind which leads them to follow the prevailing aristocratic fashions at any cost, even when the risks are fully set before them. And as the facts of medical science were understood to condemn artificial compression of the waist *in toto*, and to exhibit serious injuries as the constant result of this practice, there really did seem a chance that the custom would be definitely banished to limbo; for a good many of the leaders of fashion seemed to have been frightened into common sense, and the mass of the female population might have been safely trusted to follow them like sheep. Under these circumstances we observe with not a little indignation that a deliberate attempt is once more made, by some person just clever enough to do mischief, to persuade the ladies that the wasp-like waist in not merely becoming, but consistent with health. A book has been written which affirms that the proper circumference of the female waist, on æsthetic grounds, is fifteen inches and a half, and that waists which are ten inches larger than this, may and ought to be speedily reduced to this regulation pattern, without any permanent damage to health. As positive advantages, it is urged that a very useful support is thus given to the spine, and that the busts of persons who have passed the bloom of youth are supported instead of being allowed to droop.

We are not going to argue the æsthetic question; that has been fully treated by our weekly contemporaries. Our business is to respond to the appeal which the *Spectator* makes to us. That journal requests us to restate, for the instruction of the public, the medical objections to tight stays; and tedious as it is to repeat such truisms, it is our duty to put the matter beyond the possibility of mistake.

1. Tight-lacing seriously limits, indeed almost annihilates, the respiratory movements of the diaphragm; for the pinch comes just on that portion of the ribs to which the great muscle of inspiration is attached, and squeezes them together so as to throw it almost or altogether out of work. 2. The constant pressure of the corset on the muscles which should support the spine gradually impairs their nutritton, so that they are no longer able to do their work, and the victim of tight-lacing feels wretched the moment her artificial supports are removed. 3. The hindrance to breathing with the diaphragm throws the work of respiration chiefly, if not altogether, upon the upper intercostal muscles of the neck, and a permanent condition of imperfect aeration of the blood results, causing general languor and debility. 4. The abdominal viscera, especially the stomach and liver, are violently squeezed, and driven downwards from their natural position; and the never-failing result of this is impairment of digestion and assimilation. This dyspepsia may or may not be attended by pain and other obvious symptoms: these generally exist, but their absence does not imply the absence of mischief. 5. The uterine functions are always more or less perverted. Lastly, it may be mentioned that the pressure on the bust is very often productive of great suffering. The glands are so squeezed, and especially the nipples are so flattened, from an early period after puberty, that when the time arrives for nursing an infant, the young mother finds either that she cannot suckle at all, or must do so in great misery, from inflamed nipples, abscesses, &c.

Altogether, a more totally indefensible sin against the laws of health and good taste than tight-lacing could not be found. If there be a spark of right and honest feeling left among our women, of whose purity of character we are so fond of boasting, now is the time for them to show it by refusing to listen to the impudent sophistries like those to which we have referred,

## PROFESSIONAL ADVERTISING.

The extent to which the "puff oblique" is carried in the present day by the advertisement of medical works in the daily journals is a matter of increasing scandal to the profession. We have on more than one occasion directed attention to this matter; but the number of delinquents increases—emboldened, we presume, by the success of the originators of the system. We shall proceed to give the results of only one week's investigation of the columns of a daily journal. We have nothing to say here about works which are the production of quacks or of members of the profession but one degree removed from quackery; but we wish to prevent otherwise respectable members of the profession—physicians and surgeons to our public hospitals—from being included, as they will shortly be, by the reading public in the same category with these.

On Monday, the 18th May, one of the ordinary lists of a leading medical publisher appeared in a morning paper, including all the principal medical works which have recently been published by that firm. To such an advertisement, giving merely the names of authors, with the titles and prices of their works, and which is nothing more than a business advertisement on the part of the bookseller, no objection can be made, provided it is not too frequently repeated. On the following Thursday, also, a somewhat similar list appeared, but comprising for the most part works which had not appeared in the previous list. Four volumes, however, on eminently "practical" subjects appeared in *both* lists, and we cannot suppose without the authors' sanction. The most noteworthy point is, however, that in the succeeding page of this same day's journal no fewer than *seven* supplementary advertisements are to be found, referring to works already advertised in the same paper.

If these are to be taken as specimens of the style and frequency of the advertisements of medical works which are held to be compatable with high professional position and honor, we can only say that the code of professional ethics must during the last few years have most miserably deteriorated, and that if things go on as they are doing, we may shortly expect to see numerous imitations of the advertisement by Mr. Langston Parker—to be found in the "second column" of *The Times* of Saturday week—and which we commended to the consideration of the profession in the provinces in our last issue.

### THE EPIDEMIOLOGICAL SOCIETY.

An admirable embodiment of the facts relative to the dissemination of cholera amongst the troops consequent upon the recent festival at Hurdwar, in the Punjaub, from the pen of Assistant-surgeon Sutherland, was brought under the notice of the above Society on Monday, the 1st of June. The paper had been sent to the Society by the Director-General of the Army Medical Department, in the belief that the accurate record of facts in regard to the order and succession of phenomena would render it a valuable aid towards the elucidation of the general progress of epidemics of cholera. Dr. Goodeve, who occupied the chair, supplemented the paper by reading an abstract of Dr. Murray's account of the Hurdwar festival itself. About 3,000,000 persons were then assembled. The cholera appeared after a very heavy fall of rain, subsequent to which the whole concourse had performed the sacred rite of bathing in the Ganges. After this the pilgrims dispersed, and cholera broke out in various parts of India to which the pilgrims went, and always subsequently to their arrival at them. Mr. Edwin Chadwick, C.B., referred to the good sanitary work recently done in India, and the necessity of proceeding still more vigorously in the same direction. He also pointed out how necessary it was that properly-qualified engineers should be provided to conduct engineering works. Inspector-General Lawson spoke at some length in favor of the opinion that in the dissemination of cholera not so much was due to human intercourse as to the influence of certain general conditions travelling in certain uniform and constant directions—pandemic waves, as he has termed them. Mr. J. N. Radcliffe, in reference to both communications, expressed his regret that no attempt had been made by the observers to ascertain the immediate influence of the rainfall, and its effect on the soil and the water used by the pilgrims. He instanced the recent investigations conducted in the case of the fever at Terling as affording the best type of what kind of observation in cholera epidemics was needed, and mentioned that Professor Pettenkofer is at this moment at Malta pursuing an investigation of the kind to which he alluded—an investigation which could and should have been made by Dr. Sutherland in his recent almost useless inspection of Malta and Gibraltar. Dr. Tilbury Fox then referred to certain unusual phenomena lately observed pretty generally in connexion with vegetable parasitic diseases. He stated that these diseases had not only been more frequent of late, but existed in a specially well-marked, and, as it were, over-developed condition. Ordinary states had, in fact, been exaggerated. In consequence of this, while errors of diagnosis had been frequent on the one hand, it had been possible to recognise, on the other, phenomena about which doubt often existed, in consequence, for example, of the small amount of fungus or the small size of the spores and mycelia present. In tinea decalvans the fungus had been recently very readily seen. Another consequence was, the assumption of almost "new features" by parasitic disease. Three cases of herpes circinatus were mentioned in which error had been made. In two the vesicles were large and well developed at first; there was more than ordinary fluid, more local irritation, and therefore prominence of the diseased patch; and finally, in the last stage, which was quickly reached, more scaling than usual. In a third case the disease had developed quickly over both arms, and was stated by the medical men from whom it came to be psoriasis, which it resembled. In all these cases the fungus was unusually luxuriant, and specimens of these fungi were placed on the table. Another feature of the parasitic disease, as existing at present, was a very rapid development. This had especially appeared to apply to chloasma, which had been developed in several cases almost like an acutish exanthem, covering large areas of the chest-wall and arms in a week or ten days, and being mistaken for syphilis. The circular character had been lost in two instances, the mycelial threads sprouting out in all directions. Lastly, fungi, in their luxuriance, had been seen to assume the characters of others, and the microsporon Audonini was placed under the microscope as exhibiting very large oval spores and freely-branching mycelium, like that of penicillium. One specimen of the epiphyte in hair removed from herpes circinatus of the arm exhibited all transitions, from the smallest to large oval, chained spores. Dr. Fox stated also that in chloasma, instead of the spores being heaped together, they had, from their abundance, shown a disposition to be generally diffused throughout the epithelial scales. He drew attention to the fact that the minute form of fungus was generally overlooked in the tinea. These clinical facts are very interesting and important, as showing how unusual conditions may render difficult the diagnosis of skin diseases, and point to the importance of microscopic examination.

### EPIDEMIC DISEASES IN PLANTS.

The *Gardener's Chronicle and Agricultural Gazette* has recently contained some very interesting information on the subject of epidemic diseases amongst plants. Dr. Gavin Milroy had addressed a series of questions to the editor on the nature and spread of these diseases. The questions were submitted to the Rev. J. Berkeley, and the replies have a peculiar value from having been furnished by that distinguished mycologist. The information refers first to the most frequent epiphytics known in this country; and secondly, to the relationship of entophytics to epiphytics. Next, the meteorological and topographical relations of these diseases are referred to; and, subsequently, their manner of spreading, tendency to recurrence, co-existence with or other relationship to epidemics, and pathology, are touched upon. The questions which bewilder the mind as to the etiology and mode of spread of epidemics arise also in studying epiphytics. Each epiphyte requires to be studied for itself, and has its own history of development. The epiphytes best known in this country are so commonly diffused that, in years favorable for their growth, their occurrence is almost simultaneous. They have in the best known instance definite meteorological and topographical, although not as yet in all cases clearly understood, relations; but in many instances the most evident cause of spread is the diffusion of spores by wind and insects.

As in the less accurately understood epidemics among man, it is not easy to determine the part actually played by the different etiological elements in the spread and permanent maintenance, and occasional recurrence, of an epiphyte. Mr. Berkeley disbelieves in Hallier's views of the connexion of cholera with parasites on rice. He is devoting great pains to an examination of the parasites of the grain and plant. Admitting that some cutaneous disorders arise from fungi, he maintains that there is nothing to show that fevers, or other contagious or infectious diseases, arise from the same cause. It was supposed that diphtheria depended on a fungus; but Mr. Berkely has examined diphtheritic membranes in which there was no fungus. We touch only briefly for the present on this interesting subject, as we have reason to believe that it will be brought before the next meeting of the Epidemiological Society. In the meanwhile, the thanks of the profession are due to Dr. Milroy for having elicited from Mr. Berkeley the information to which we have thus summarily referred.

### HONG-KONG IN 1867.

It is satisfactory to learn that the good report which Dr. Murray, the colonial surgeon, was enabled to give of the sanitaty condition of Hong-Kong in 1866, is surpassed by that of 1867; in other words, that Hong-Kong is making steady progress in sanitation. In the past year the mortality was only 2 60 per cent., or little more than half the average rate of the last ten years. The epidemic of yellow fever, which in 1865–66 caused so many deaths amongst the gaol population and the poorer classes, disappeared in 1867, only one death being ascribed to this cause. Small-pox made its appearance in the Civil Hospital in January, 1867, the last case being admitted from a war-vessel on the 5th of June. In February, 56 cases were landed from the *Princess Royal*, and of these 4 died. Dr. Murray refers to the facilities offered for importation; and suggests that the earliest information should be given to the colonial surgeon or other officer of health in order that cases might be effectually isolated. It is also suggested that stringent measures should be devised to enforce vaccination throughout the district, and as far as possible to encourage it amongst the migratory population of the place. Special means have been taken of late to prevent the sale of drugged liquors. Dr. Murray states that the Chinese are remarkable for the peculiar friability of the spleen, so that it is ruptured upon the application of the slightest violence. The rate of sickness in the policeforce was much lower than during 1865, especially in the matter of venereal disease. In 1867 the sick-rate from venereal disease was 14·13, as against 22·37 in 1866, 23·34 in 1865, 22·37 in 1864, 15·89 in 1863, and 31 in 1862 per strength; and the diminution is marked in the cases of bubo and chancre. In the Civil Hospital an improvement has been observed in fever, diarrhœa, and dysentery. Yellow fever has been entirely absent from amongst the Chinese in the gaol: the daily average number of inmates in 1867 was 427; of which number 14 died. In the year previous the numbers were respectively 584 inmates and 70 deaths. The deterrent effect of public flogging, Dr. Murray remarks, has been evident during the year.

### MODERN SCIENCE IN WAR.

We can quite understand that King Theodore was affected with a species of moral paralysis when he perceived the resources we had brought into the field and the disastrous effect of our Snider. He was clearly a man of great energy and courage, and he possessed some of the qualities we find in school boys. He was, like them, cruel, only of course in a far different degree; and his implicit confidence in his big mortar, and the enthusiastic anticipations which he had formed of what it would effect, are exactly the kind of feelings which animate a boy when first possessed of a gun. After witnessing the terrible losses his troops sustained on the 10th of April, his courage seems to have been replaced by the apathy of despair. Our Sniders, mountain artillery, rockets, &c., showed the progress that had been made in artillery; but by far the most novel aid of modern science to warfare was not tried. It appears, on the authority of the *Spectator*, that Sir Robert Napier had an apparatus for employing the *magnesium light* on a grand scale in the event of a night attack. "At a distance of 600 yards a bewildering blaze of light would have been thrown into the eyes of the Abyssinians, and the British, themselves in impenetrable shadow, would have shot down their lustrous enemies at leisure and at once..' The poor Abyssinians would have thought that we had stolen from the gods not fire only, but the sun itself from the heavens.

### THE LEPER.

The present social position of the poor mendicant leper generally throughout the East is a most deplorable one, and it is not surprising that he is often subject to the most inhuman treatment. In the recent Report on Leprosy prepared by the College of Physicians, great prominence was given to the cruel neglect of the leprous outcast, and the necessity and humanity of decently lodging and housing him, instead of allowing him to live on more like a wild beast than a human being. It is to be hoped the Government will not lose sight of the point. The Indian papers tell us that the practice of burning lepers alive is still carried on in Rajpootana. It is an easy and short method of getting rid of the afflicted. The Rao of Serohi has issued a proclamation forbidding the practice under a penalty of ten years' incarceration; but the prevention of the act is difficult. One means to this end would be the provision of a suitable lazaretto at or near Serohi. The expense would be comparatively trifling.

### PUBLIC DECENCY AND MORALS.

The *Saturday Review* calls for some restriction on the sale of obscene literature, and the exhibition of the so-called anatomical museums. We are gratified that our contemporary has come to feel so strongly on this great public evil. We can only hope that its complaints will be effective. The display of indecent photographs, the horrible pictures of the *Police News*, the filthy advertisements of some of our newspapers, the impure pamphlets that are circulated extensively under medical titles, and the anatomical museums, are things from which the public should be more protected than they are. We are no advocates for taking too much care of the virtue of the public, but Government may take too little; or rather, it may wrongly permit facilities to coarse and filthy people for thrusting their vile wares under the public eye. It is not contemplated that we are to be shocked in walking the public streets, or on opening the books that reach a family by post, or a pamphlet that purports to expose the evils of a religious system. But all this is going on, and the police do not interfere efficiently. Who is to blame? and who will endeavor to have a remedy applied?

### M. DUMAS'S EULOGIUM ON FARADAY.

The last annual sitting of the Academy of Sciences of Paris was almost exclusively devoted to the memory of Faraday, who was one of the eight foreign associates of that celebrated scientific body. M. Dumas, the perpetual secretary, depicted in eloquent terms the life and doings of our great chemist. The orator not only paid a large tribute of praise to the genius of his hero, and enumerated the discoveries which rendered Faraday one of the most eminent scientific men of the age, but dwelt with peculiar fondness on his moral qualities, which, to use his own words, "lent such an incomparable charm to the physiognomy of the illustrious *savant.*"

### THE CALOMEL BATH.

From some recent experiments which he has made, Mr. Henry Lee has found that the irritating agent which is given off from the calomel bath, especially when this is freely used, is nothing more or less than hydrochloric acid. The effect of this acid is negatived by the use of a tray of water surrounding the pan which contains the calomel, so as to ensure its dilution. This is a little practical matter which is not sufficiently attended to by practitioners, and its neglect of course readily accounts for one source of unfair objection to the action of the bath.

In the last number of the *American Journal of Medical Science* Dr. Salisbury has described a new batch of vegetable parasitic growths which he has seen developing in the parent epithelial cells of the urinary and genital organs; and he has illustrated his paper by thirty-four woodcuts. The author's tendency to multiply species is in direct antagonism to the teachings of modern science; and those who are acquainted with microscopic fungi will recognise, we doubt not, in Dr. Salisbury's *Torula catarrhalis*, *Zymotosis gracilis*, *Penicillium pruriosum*, and the like, nothing save slight variations from the ordinary state of torula, and especially in its odial form.

Dr. Mapother advocated in a paper read this week before the Statistical and Social Enquiry Society of Ireland the removal of the judicial functions of coroners to magisterial hands, and the appointment of physicians as experts in city and country districts, whose duties should be to superintend birth and death registers, give evidence before courts of inquiry, to conduct analyses, and act as medical officers of health.

The appointment of a professor of homœopathy at the Faculty of Michigan has caused three of the professors to send in their resignations. It is supposed that all the other gentlemen attached to the school will follow their example.

The fitness of the South African colony of Natal as a residence for consumptives is urged in a little pamphlet published under the authority of the Natal Government, by Dr. Mann, the Emigration Commissioner in England for that colony.

M. Chauveau, of Lyons, whose original researches on the vaccinal virus are known to the profession, has received a well-merited reward from the Institute of France, in the shape of a gold medal.

## Foreign Gleanings.

### BENCE JONES'S QUINOIDINE AND DR. CHALVET.

Dr. Chalvet has repeated, before the Biological Society of Paris, experiments on efflorescence which tend to throw some doubt on Dr. Bence Jones's conclusions respecting quinoidine. The facts, however, mentioned by the latter physician have been fully confirmed by Dr. Chalvet, whose experiments again prove that the living tissues contain a substance giving rise to an efflorescence exactly similar to the refractive phenomena of sulphate of quinine. Dr. Chalvet has also found, like Dr. Bence Jones, that this efflorescence disappears in acute febrile diseases; but he does not agree with Dr. Jones as to the origin of this supposed quinoidine. Dr. Chalvet has shown, on the contrary, that this efflorescent substance exists in most articles of food, especially in wine and vegetable substances. From these researches the French author concludes that the so-called quinoidine is not derived from albumen; that it is introduced into the organism by the ingesta; that it mixes with the animal fluids, as happens with iron; but that (herein quite similar to iron) it does not spontaneously spring up in the animal tissues. As this quinoidine is rapidly eliminated, low diet somewhat prolonged must cause the efflorescence of the urine to disappear, and thus is explained the supposed destruction of quinoidine by fever. Dr. Chalvet is inclined to class the substance in question with quinine itself, which may be supposed to exist in infinitesimal quantities in all vegetables, and thus would its constant presence in the tissues and fluids of animals be accounted for.

### HEREDITARY NATURE OF HARE-LIP.

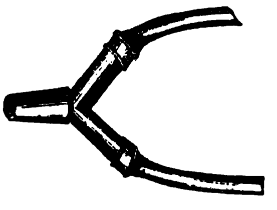
M. Demarquay lately asked the advice of the members of the Surgical Society of Paris touching a little girl, five years old, who presented a double hare-lip. Some difficulties will be encountered in the operation, but the interest of the case lies in the fact that, in the family, from the grandparents downwards, eleven children have been born with hare-lip, or with a peculiar conformation of the lower lip—namely, two openings on either side of the mesial lines, traversing the whole labial thickness, with a peculiar form of the lip itself. To this latter defect M. Demarquay had called attention, in the *Gazette Médicale*, as early as 1845.

### HYDROPHOBIA IN PARIS.

M. Peter had lately under his care a man aged thirty-one who died with fearful spasms of this sad complaint. He was admitted on the 27th of March, death occurred on the 29th, and he had been bitten by his own dog in the preceding November. The wound had been cauterised with the perchloride of iron (*sic*). The principal features of the treatment were vapor baths and subcutaneous injections of sulphate of atropine. The autopsy revealed considerable congestion in the lungs and brain.

### WARM DOUCHES TO THE EAR IN OTORRHŒA.

Dr. Prat considers that the membrana tympani allows of osmotic dialysis, and can be penetrated by liquid or gaseous currents. As much as ten, fifteen, or twenty quarts of warm water may be used for each ear in the shape of continuous irrigation. To accomplish the latter, Dr. Prat had a simple instrument constructed, composed of two india-rubber tubes, connected with a very short cylinder, so divided as to allow of a double current. Thus a continuous irrigation is established by one of the tubes placed in the warm water, the short cylinder being in the meatus externus. The best results have been obtained.



### FATAL DIVISION OF AN INTERCOSTAL ARTERY.

M. Demarquay, of Paris, had lately under his care a patient suffering from necrosis of the ninth rib in consequence of injury. An abscess had formed, which the surgeon opened, and, to obviate severe symptoms of dyspnœa, the part was largely laid open. This incision fell upon the intercostal artery exposed by the displacement of the rib, and after several attacks of hæmorrhage the patient sank.

## News Items, Medical Facts, &c.

**Legal Enactments to Regulate the Practice of Dentistry.**—At a recent meeting of the Medical Society of the State of New York, it was resolved,—That whereas the dental profession of the State of New York (now numbering about two thousand practitioners) are about to petition the Legislature of the State for such legal enactments as will tend to regulate the practice of dental surgery, and to mark some distinction between the meritorious and skilful and the ignorant pretender, and to give this profession a legal recognition, it is by this, the State Medical Society, resolved that this movement on the part of the dental profession of this State to procure such general laws for their protection as now pertain to the medical profession, meets with our hearty approval and that we hereby join in the prayer of these petitioners for this purpose.

**Birmingham and Midland Eye Hospital.**—The Report of the Medical Board of this institution states that 7459 persons affected with diseases of the eye were treated at the hospital during the past year, being the largest number of patients attended in any year since the foundation of the charity. The total attendance of out-patients during the year was 26,695. 146 cases of cataract had been treated on the improved method. The gross number of cases relieved in the three years ending March 31st was 22,047; which includes 629 operations for squint, 376 for cataract, and 284 cases treated by iridectomy.

**Death from Tight Lacing.**—We record for the benefit of the ladies of England the melancholy death of a young lady in New York from tight lacing. Miss Jones, the lady in question, died suddenly, and, it is alleged, from apoplexy of the lungs in consequence of unusual tight corset lacing. There was an actual post-mortem examination and inquest, ending in a verdict in accordance with the above statements. Ladies will, of course, be in the fashion. We only show them that this occasionally involves going out of the world.

**Liebig's Bread.**—The great German Philosopher is consistent: after his extract of meat he gives us bread to eat with it. Of course this bread is more congenial to the taste, and digests better than ordinary bread. Nor is this all; for M. Liebig maintains that, by his process, 7 per cent. more bread is obtained than by the usual methods. If these promises are not vain, it will be advisable to give the new process a trial.

**Contagious Diseases in New York.**—During the two weeks ending March 15th, 1868, the following cases occurred in New York: 159 cases of scarlet fever, 132 in children under ten years of age; 15 typhus, 7 typhoid, 14 diphtheria, and 2 small-pox.

The final abolition of corporal punishment in female prisons in Prussia is now ordered by the Minister of the Interior.

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# THE LANCET.

A Journal of British and Foreign Medicine, Physiology, Surgery, Chemistry, Criticism, Literature, and News.

J. HENRY BENNET, M.D., T. WAKLEY, Jr., M.R.C.S.E. EDITORS.

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# Clinical Lectures ON PULMONARY EMPHYSEMA.

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## LECTURE II.

Gentlemen,—In my recent lecture on Pulmonary Emphysema I enunciated the opinion that chronic or general emphysema is only developed as a rule, in lungs the tissues of which are already predisposed by some form of degeneration to yield to the distending pressure to which they are subjected. This degeneration, impairing the natural tone and elasticity of the lungs, might, I also stated, be the result of a constitutional vice, or it might be the sequel of bronchitis, or, again, it might be one of the consequences of senile decadence. I accordingly recognised three forms of general emphysema—namely, constitutional or substantive emphysema, bronchitic emphysema, and senile or atrophic emphysema. I entered fully on that occasion into the consideration of the first of these three forms, and the cases I then related sufficiently exemplified the fact that, in persons of certain constitutions, emphysema may originate as a primary disease, independently of the existence of bronchitis or of any other pulmonary lesion. Sooner or later, however, as these cases also demonstrated, bronchitis never fails to associate itself with existing emphysema.

I propose to bring under your notice to-day the second of the three forms, which includes all that class of cases in which either emphysema begins simultaneously with bronchitis or is developed very rapidly after its accession, as well as another class, in which the emphysema only becomes developed after the patient has suffered from severe and repeated attacks of chronic bronchitis. In the cases belonging to the first class we must, I venture to think, admit also, generally speaking, the presence of previous degenerative changes, or at least the previous loss of tone and elasticity in the walls of the air-vesicles; for it would otherwise be very difficult to explain the circumstance that in some persons bronchitis is so speedily followed by emphysema, whilst others will suffer from severe and repeated attacks of bronchitis and yet emphysema will either be very slowly developed or will never make its appearance at all. As both chronic bronchitis and pulmonary emphysema originate, I believe, very frequently in constitutional causes, and indeed in the same form of dyscrasia, it is quite intelligible that they should often either commence simultaneously, or that the coughing incident to bronchitis should very rapidly induce the development of emphysema in lungs constitutionally predisposed to it. In other cases, however, there seems no doubt that repeated attacks of bronchitis may at length induce emphysema of the lungs without the aid of any such constitutional predisposition. And this may happen either because the frequent and forcible distension of certain parts of the lungs during paroxysms of coughing has gradually impaired the tone and elasticity of the cell-walls, or because the nutrition of the pulmonary tissues has been interfered with by the bronchitis, or, which is more probable, both these factors may act together. The case of a patient, who has been repeatedly under my care during the last four years, is an excellent illustration of that class of cases in which the emphysema appears to have originated in the same constitutional cause as the bronchitis, and I shall therefore read you my notes of it, which have been carefully preserved year by year. It is another of the very numerous examples of the concurrence of gout and bronchitis in the same patient which have occurred in my practice, and to which I have frequently drawn your attention.

W. E——, aged thirty-seven, a rather short, square-built man, by occupation a coachman, of temperate habits but accustomed to drink beer daily, was admitted as an out-patient at the Middlesex Hospital, under my care, on Nov. 24th, 1864. He had been under my care in the year 1862 for gout, of which he had another attack in 1863, followed by bronchitis. To each of these diseases he had a hereditary right, his father having been gouty, and both his parents, as well as one sister having been subject to chronic cough. He had himself suffered from cough in winter for several years, had had it throughout the previous winter, and had now again been suffering from it for a fortnight. The cough was attended by a copious, thick, transparent expectoration, which he said closely resembled starch in appearance. On admission, his voice was hoarse, skin cool, pulse 72, and of good volume. The respirations were 22, and chiefly abdominal; the thorax expanding comparatively little in ordinary respiration, whilst the abdominal movements were very marked. His breathing was not in general much distressed, but he suffered occasionally from severe attacks of dyspnœa. His chest was broad, capacious, and prominent, and very resonant on percussion over the whole front, including the cardiac region. The apex-beat of the heart was not visible. The heart-sounds were feeble and distant, but free from murmur, normal in rhythm, and best heard on the left side of the epigastrium. The sounds of respiration were feeble, but, with the exception of slight rhonchus in the base of the left lung, they were almost normal. I prescribed a draught containing twenty minims each of compound tincture of gentian and tincture of henbane, with ten minims each of diluted nitro-hydrochloric acid and ipecacuanha wine, in an ounce and a half of water, to be taken three times a day; with five grains of the compound pill of hemlock every night at bedtime. I also directed him to discontinue drinking beer, which was likely to aggravate the bronchitis, and pretty sure to bring on a recurrence of gout. Under this treatment my patient improved very much, and although he continued his attendance, I may pass on to the notes of his case taken on Jan. 26th, 1865, on which day he complained of an accession of cough attended by the same transparent, bluish expectoration which he had been raising when he came under treatment in the preceding November. He attributed, and no doubt very justly, the aggravation of his ailments to the fogs which had prevailed for some days; and he also stated that whenever he inhaled much dust, as he sometimes could not avoid doing, in the stable, he always suffered from a temporary exacerbation of his complaint. He continued under observation until the end of March, when he was discharged apparently well.

He spent the summer in the country, where he had two attacks of asthmatic dyspnœa. These came on at night, awaking him out of sleep about midnight, and the paroxysms recurred on each occasion for three or four successive nights. The difficulty of breathing was sufficient to cause orthopnœa, and the attacks were attended by cough and expectoration. He was re-admitted under my care on Sept. 21st, having then been in London again for three weeks, and free from asthma until the night preceding his admission. This attack had manifestly been connected with an accession of bronchial catarrh, for he was coughing much and raising a scanty frothy sputum. The skin was cool but moist, the pulse 72, the respirations about 18. The front of the chest was, as before, very resonant on percussion, but the respiration was wheezy, the sound of expiration prolonged, and sibilus and rhonchus were audible over both lungs, varying somewhat in position from time to time. Under treatment similar to that adopted the year before, the patient again improved, and was discharged in the course of a few weeks in comfortable health and quite free from cough and expectoration.

He continued well until the end of January, 1866, when he had a fresh accession of catarrh, and again presented himself at the hospital, complaining of cough and dyspnœa in the morning, of wheezing at night, and of pain and soreness in the soles of his feet. The expectoration was transparent, thick, and rather scanty, the skin moist, the pulse 84. The respiration was somewhat laborious, and the heart's impulse was only seen and felt below the xiphoid cartilage. The percussion over the thorax was remarkably clear, more particularly over the fourth rib on either side, where also the vocal vibration was very feeble. The patient again recovered, and continued unusually well for some months, escaping altogether the asthmatic paroxysms from which he had suffered during the previous summer. On Sept. 8th, however, he had a shivering, followed in the evening of the next day by a severe attack of dyspnœa amounting to orthopnœa. The dyspnœa was more persistent than on former occasions, but he still became comparatively well by the middle of the day and able to do his work as usual. He had similar attacks every successive night until Sept. 13th, on which day I saw him. His pulse was quicker than in his former illnesses, being from 86 to 90, and he was expectorating with difficulty a scanty, white, frothy sputum. His breathing was more laborious than I had yet seen it, the muscles in front of the neck being now, as well as the abdominal muscles, in powerful action to assist the respiratory efforts. The sounds of respiration were somewhat harsh and dry, and expiration was prolonged. In addition to treatment similar to that prescribed on former occasions, I now directed the patient to smoke a stramonium cigarette as soon as he felt the commencement of an asthmatic attack. He derived much relief from the stramonium, which never failed to shorten and mitigate the asthmatic paroxysms, and in a few days he was able to dispense with the cigarettes, and continued free from the asthma until early in November. On the 3rd and 6th of that month he had attacks which were slighter than formerly, and did not disturb him at night, but came on when he first rose in the morning. On each occasion he smoked a cigarette, with, as he believed, very great advantage. He was desired to continue the use of the cigarettes whenever required, and to take a draught containing three grains of iodide of potassium, five grains of carbonate of ammonia, and twenty minims each of tincture of squills and tincture of henbane, in an ounce and a half of camphor water, three times a day.

My last note of this patient is dated Jan. 29th, 1867, when he reported himself as feeling greatly better than he had done for several years past. Although it was the season during which he had been accustomed to suffer from cough, and the weather had been very severe, he had this winter remained quite free both from cough and expectoration. He had had no attack of dyspnœa since those mentioned in November. His breathing was quite comfortable excepting on foggy mornings, when he suffered slightly from shortness of breath. The physical signs of emphysema remained, however, much as before. Although the patient was quite free from subjective respiratory distress, the scaleni and sterno-cleido-mastoid muscles were somewhat hypertrophied, and were engaged in ordinary respiration, though not in the violent manner often seen in cases of extensive emphysema. The expansion of the chest was imperfect, but its movements were regular and symmetrical on the two sides. The abdominal muscles were in unusual activity, and so much hypertrophied that the situations of the linea alba and lineæ transversæ were distinctly marked by furrows. There was slight regurgitation of blood into the veins of the neck, but no cardiac murmur. The heart's impulse was moderate, and the beat was faintly seen in the epigastric region.

Although I have read you only an abstract of my notes, the foregoing case has occupied much of our time, and in my opinion not unprofitably, for I believe that, irrespective of any points of peculiar interest in a case, more is to be learnt from the careful study of the history of one patient during successive illnesses than from the history of a succession of patients each under observation for a short time only. At the same time, however, it appears to me that there are several points of especial interest in the case before us. One of these is the pretermittence of the hereditary gout, of which the patient had previously had two attacks, during the whole four years that he has been under my care for chronic bronchitis and emphysema. Since his first severe attack of bronchitis in 1863, his only threat of gout has been the pain and soreness in the soles of his feet in February, 1866. It is true that medical treatment and abstinence from malt liquor may have had some share in causing this pretermittence, particularly during the latter part of the period; and, certainly, nothing is more worthy of notice than the obvious relief which the patient has derived from treatment, both as regards the frequency of the bronchitic attacks and the severity and duration of the asthmatic paroxysms. These latter are not uncommon in emphysematous patients, and I believe are generally associated, as they were in the present case, with intercurrent accessions of bronchitis. But on the present occasion I wish more especially to direct your attention to those points in the case which relate to the emphysema and its effects upon the mechanism of respiration. I have already alluded to the very exceptional degree of comfort which this patient enjoyed during the intervals between the bronchitic attacks compared with most persons whom I have seen when suffering from equally extensive emphysema. When last examined he declared that his breathing was quite easy, and that he was not in the least distressed at his work.

This immunity from the suffering usually incident to his condition I attribute to a feature in his case which, in my experience, is of rare occurrence in chronic general emphysema, but which was mentioned thirty years ago by Dr. Stokes in his valuable work on Diseases of the Chest. Dr. Stokes there draws a distinction between those cases of emphysema, or, as he terms it, dilatation of the air-cells, in which the diaphragm is displaced downwards, and those in which it is not so displaced; and relates the case of a young man who exhibited all the characteristic signs of emphysema, together with great enlargement of the chest, but without any evidence of depression of the diaphragm. This young man did not suffer from difficulty of breathing in the intervals during which he was free from bronchitis, and was able to take very active exercise, having only a short time before he entered the Meath Hospital walked a distance of forty miles in the course of a single day. The chief inconvenience he experienced was the frequent occurrence of bronchitic attacks. This was precisely the condition of my patient, whose case evidently belonged to the same class, for it was manifest on inspecting his chest that no material downward displacement of the diaphragm had been caused by the pressure of the enlarged lungs. The fulness of the epigastrium which is observed when the heart, diaphragm, and liver are displaced downwards did not exist, and the respiration was more abdominal than is consistent with any great interference with the position of the diaphragm. The heart, it is true, was displaced backwards and inwards, apparently by the overlapping of the enlarged lungs in front of that organ, and it could be seen and felt beating on the left side of the epigastrium, near the margin of the ribs. But the impulse was moderate, and the pulse of good volume, showing an absence of that violent action of the heart, and also of that disproportion between the cardiac impulse and the radial pulse which are commonly present in emphysema involving much downward displacement of the heart. The explanation of this remarkable feature in our patient's case I believe to be, that the cartilages of the ribs, being still elastic, had allowed the parietes of the thorax to yield gradually, as the emphysema developed to the increasing volume of the lungs, which had not therefore exercised upon the diaphragm more downward pressure than it was able to resist, and its normal function of enlarging the capacity of the thorax during inspiration was in consequence still duly performed. To these two circumstances—the continued elasticity of the walls of the chest and the unimpaired ability of the diaphragm to do its proper work—it was doubtless due that our patient's inspiration at ordinary times had a much less spasmodic character than is usual in cases of extensive emphysema, the chest still expanding, though imperfectly, and the muscles of the neck being called into less violent action as elevators of the thorax. Again, the position and action of the diaphragm being little interfered with, the abdominal muscles could be called into unusual activity to assist the performance of expiration, which they did to the extent of rendering it a visibly active process, till they had at length become hypertrophied in the manner I have described in the case, the situations of the linea alba and lineæ transversæ being marked by deep furrows. In fact, I apprehend that at ordinary times the degree of accessory aid thus given to the act of expiration nearly compensated for the loss of contractile power in the lungs, and therefore rendered unnecessary the painful inspiratory efforts usually made by emphysematous patients. Moreover, although the right side of the heart was undoubtedly dilated and hypertrophied in consequence of the impeded flow of the blood through the lungs, here again the increased power seemed at ordinary times just to balance the impediment. It is probable, indeed, that later in life, especially when the bony cage of the thorax eventually becomes rigid, the balance may be destroyed, for the emphysematous lungs can never return to their normal condition. But if our patient continue careful in his habits, and can escape serious bronchitic attacks, the further progress of the disease may be retarded, and the balance established by means of increased power in the accessory muscles of respiration and in the heart may be long maintained, and enable him to live on in comfort for many years.

This case, I think, clearly belongs to that class of cases in which, although the bronchitis acts as the immediate exciting cause of the emphysema, there has been some previous degenerative change in the walls of the air-vesicles predisposing to its development; for its advanced stage at the time of my first examination showed that either the bronchitis and emphysema must have commenced simultaneously, or, at the least, that the coughing incident to the bronchitis must have induced the development of the emphysema far more rapidly and generally than it usually does in lungs not constitutionally predisposed to it. I regard the case, in fact, as one in which the bronchitis and emphysema arose out of the same remote constitutional cause. After my former lecture on Pulmonary Emphysema, you will have no difficulty in inferring my opinion that the gouty dyscrasia, which was hereditary in our patient, and which had shown itself in regular attacks of gout previous to the accession of the bronchitis, was in his case the real source of the emphysema as well as of the bronchitis. On the relation subsisting between this latter disease and the gouty dyscrasia I have spoken so fully on former occasions that I need not dwell upon it now.

I shall next read you the history of a case in which the influence of dyscrasia upon the production of the emphysema is less certain and distinctly marked than in the case we have hitherto been considering but in which also the rapid and extreme development of the emphysema leaves no doubt, in my opinion, that the comparatively recent bronchitis, which had never been excessively severe, could only have produced it in lungs which had already lost their normal powers of resistance.

J. M——, aged twenty-seven years, a laborer, who had been under my care for a short time in December, 1864, and again in March 1865, was re-admitted as an out-patient at the Middlesex Hospital, October 3rd, 1865. He stated that three years before he had been ill for nearly six months and had been confined to bed for many weeks with rheumatic fever, followed by bronchitis. From that time he had seldom been entirely free from cough, though it had each year been less troublesome in warm weather until the summer immediately preceding his admission, during which it had continued unabated. He had also suffered much from shortness of breath. On admission, he was obviously suffering from extreme dyspnœa, his respiration being very laborious even when he was quite at rest. The cough was of a wheezy, abortive character, attended by a very scanty expectoration of thin frothy fluid. The skin was cool; the pulse 75, feeble; the finger-ends were slightly bulbous. The urine had a specific gravity of 1015, was pale-colored, acid, and free from albumen. On exposing the chest for examination, a few patches of psoriasis were seen upon its anterior surface. The shoulders were much rounded, so that the scapulæ were brought into an almost horizontal position. The supra-clavicular regions were depressed, and formed cup-like hollows behind the clavicles, these hollows being much increased in depth during inspiration. The sterno-cleido-mastoid and scalene muscles were much hypertrophied, and in powerful action during inspiration, forcibly dragging upwards the front of the thorax in one piece as if by a sudden jerk, in order to assist the inspiratory process. The expansion of the chest was very deficient, but symmetrical and equal on the two sides. The thorax was rounded and prominent in front, so as to give it, together with the rounded shoulders, a somewhat globular shape in the upper part; but it was rather contracted than otherwise below the sixth rib, and though deep in the antero-posterior diameter was flat in the axillary regions. The note elicited by percussion over the front of the thorax, from the clavicle to the margin of the ribs on either side, and even over the præcordium, was perfectly clear. Posteriorly the percussion resonance was also abnormally clear over the base of both lungs. The breathing was spasmodic and rather quick, the respirations being 26 in a minute. In some parts of the lungs the breath-sounds were very feeble, but more generally the inspiration was wheezy and sibilant and the expiration very audible, much prolonged, and of a grave, snoring character. The breath-sounds were distinctly audible over the præcordium. Mucous crepitation was heard with inspiration in the bases of both lungs. The heart was displaced downwards and inwards; its impulse was seen and felt only in the epigastrium immediately below the xiphoid cartilage, where its sounds were also distinguishable; there was no cardiac murmur. The liver was also displaced downwards; its dulness on percussion commenced somewhat below the normal line, and its margin was felt a full inch below the margin of the false ribs. I prescribed a draught containing fifteen minims of tincture of squills, twenty minims of compound tincture of camphor, five grains of carbonate of ammonia, and two ounces of infusion of senega, to be taken every six hours, with five grains of the compound hemlock pill every night. Under this treatment he at first decidedly improved; but presuming on the improvement, he exposed himself to inclement weather, and on Nov. 20th, in consequence of having taken cold, was even worse than he had been at the time of his admission. The cough was very troublesome, and he was raising a very considerable quantity of transparent frothy expectoration, more tenacious than before. The respiration was most laborious, not only the muscles at the front of the neck, but also the lower intercostal and abdominal muscles, being in violent action. Cooing râles were heard all over the chest; the crepitation in the bases of the lungs was of a drier character than before. The skin continued cool. Five minims of ipecacuanha wine were added to each senega draught; a hot linseed-meal poultice was kept over the back of the thorax; and the urine being perfectly normal, a blister was applied across the upper part of the sternum. On the 24th the cough had already become less troublesome, except at night, the expectoration less copious, and the breathing less gasping and laborious; the breath-sounds had also slightly improved; the pulse was 90 and feeble. There being nothing in the case to contraindicate the use of opiates, a quarter of a grain of the hydrochlorate of morphia was added to the night-pill. On the 27th the improvement in the patient's condition was very marked: he had much less cough at night, the dyspnœa was less urgent, and the pulse had fallen to 72. This amelioration continued for some time, until he again took cold from some fresh exposure; for, notwithstanding the man's distressing condition, as soon as he felt somewhat better he did many little jobs of out-door work requiring only slight physical exertion, but involving great risk of taking fresh cold. After the more acute symptoms had subsided, he derived much benefit from taking the tincture of sesquichloride of iron and diluted hydrochloric acid, sometimes in combination with wine of ipecacuanha and small doses of the solution of hydrochlorate of morphia, and at other times with spirit of chloroform. When at his best, his respiration was laborious, and cooing râles were always audible in some part or other of the lungs. He was finally lost sight of, in the spring, when he considered himself as well as he was likely to become.

Here, then, is a characteristic case of general emphysema in which there is no doubt, from the patient's statement, that the bronchitis had preceded the emphysema, and that the liability to bronchitis dated from the attack of rheumatic fever three years before. As to the exact nature of the pulmonary affection which first supervened on the rheumatic attack we can, however, pronounce no positive opinion, although the patient called it bronchitis. As a rule, the rheumatic poison is prone to attack the fibrous tissues and the serous membranes, rather than the mucous membranes and the skin, which are the parts more usually affected in persons of the gouty diathesis. Hence whilst we very commonly find bronchitis and certain cutaneous diseases either coexisting or alternating with fits of the gout, pleurisy, pleuro-pneumonia, pericarditis, and endocarditis are the more frequent complications of acute rheumatism. At the same time bronchitis does no doubt occur, though more rarely, in this latter disease. I have seen two or three cases in which a primary attack of general bronchitis coexisted with rheumatic fever, and similar cases have been recorded by Dr. Latham in his Clinical Lectures, and by Dr. Fuller in his work on Rheumatism. My colleague, Dr. Thompson, had also, some time since, under his care a case of rheumatic fever in which bronchitis in both lungs constituted the more urgent part of the patient's ailments. It is therefore by no means improbable that the same may have occurred in this case; and, at any rate, the patient can scarcely have been mistaken in the fact that immediately after the rheumatic attack he had begun to suffer from cough, to which he had not been previously subject, and had continued to do so at intervals for some time before he experienced any of the shortness of breath which was now the distressing feature of his condition. But as the patient did not come under observation until the rheumatic symptoms had quite passed away and the bronchitis and emphysema were both well established, I am unwilling in this case to attach over-much importance to the relation between them; and shall now direct your attention to those points in the case which render it particularly instructive with reference to the changes produced by the emphysema in the shape of the chest and in the whole mechanism of respiration. The thorax had acquired, in a very marked degree, the somewhat globular form often associated with extensive emphysema when it has commenced in youth or in early middle life, before the costal cartilages have become ossified and unyielding. This rounded form of the thorax is mainly due to actual dilatation, and is sometimes limited to the anterior walls; but when the emphysema is general, and consequently the dyspnœa severe and the cough frequent and abortive, the patient is habitually compelled to incline his body forwards and to elevate the shoulders, until the shape of the posterior part of the thorax becomes also permanently altered. The change of shape in the shoulders is further promoted by the habit which such patients acquire of resting upon their elbows during paroxysms of orthopnœa, in order that, the arms being fixed, the muscles of the shoulders and back may be converted into accessory muscles of inspiration. But although in these cases the laborious efforts at inspiration are the most obvious, the difficulty of expiration, consequent upon the loss of contractile power in the lungs, is the real foundation of the patient's sufferings. The act of expiration being inefficiently performed, too large an amount of residual air is left at the close of each inspiration in the air-vesicles, which of course are thereby rendered unable to admit a sufficient supply of fresh air at each succeeding inspiration. In order to overcome this difficulty, and appease the craving for fresh air, more violent inspiratory efforts are made, and this is more especially the case when to the loss of elasticity in the lungs themselves is added the impediment to the accessory action of the diaphragm, consequent upon the downward pressure of the over-distended lungs. All the various muscles that can by any means be converted into accessory muscles of inspiration are then brought into powerful action. Accordingly, the sterno-cleido-mastoid muscles were seen in this patient spasmodically assisting the scalene muscles as elevators of the thorax, dragging it upwards in one piece at the moment of inspiration; whilst the muscles of the shoulders and back were, as I have already said, called into play with the same object. All these violent manifestations of distress were absent in my other patient, W. E——, at ordinary times, and you will remember that I attributed his comparatively comfortable breathing to the fact that the lungs, although extensively emphysematous, had not displaced the diaphragm downwards, so as to interfere either with the performance of its own proper function of enlarging the capacity of the thorax in inspiration, or with powerful accessory action on the part of the abdominal muscles in expiration. These latter had, consequently, sufficed to compensate in a great degree, though not without abnormal muscular effort, for the loss of expiratory power in the lungs. But in J. M—— the circumstances were very different. Owing, probably, to the rapidity with which the emphysema had attained so large a development, the dilatation of the walls of the thorax had not sufficed to obviate the pressure of the enlarged lungs upon the heart, diaphragm, and liver, which were consequently all displaced downwards in a very marked degree, thus rendering inoperative the means of compensation existing in W. E——; and hence the extreme dyspnœa and painful inspiratory efforts exhibited by this patient even when at rest. Even in his very distressing state, however, well-directed medical treatment may still be of essential service for mitigation, though not for cure; and, as we have seen under the use of sedatives and other remedies adapted to subdue the bronchial irritation, the more urgent symptoms, gradually subsided, and he was brought, for the time at least, into a much more tolerable condition.

I now turn to the notes of a case belonging to the second of the two classes into which I have divided cases of bronchitic emphysema; the previous history of the patient affording no indications of gouty, rheumatic, or any other dyscrasia, and the emphysema having only been developed after severe and repeated attacks of bronchitis.

H. B——, a married woman, aged forty-nine years, was admitted an out-patient at the hospital, under my care, on the 16th of February, 1866. Her father had died asthmatical at the age of forty-two; her mother and two sisters were living and in good health. She had never suffered either from gout or rheumatism, nor was there any history of gout in her family. For six years past she had suffered constantly in winter from cough, which, in the first instance, was induced by attending at night upon a consumptive friend without proper precautions against taking cold. She had previously enjoyed good health: and since that time she had usually been well and free from cough during the summer, until the year previous to her admission, during which she had never lost her cough, and began to suffer continuously from shortness of breath. On admission her pulse was quiet and skin cool. The respiration was labored, the cough exceedingly troublesome, and the expectoration was generally thick and white, though sometimes thinner and of a yellow color, and occasionally streaked or specked with blood. The chest was everywhere resonant on percussion. bronchitic râles were heard more or less over both lungs, and the sound of expiration was prolonged and distinctly audible. The patient continued to attend for several weeks, and became much more comfortable both as regarded the cough and dyspnœa. On the 7th of April, however she was admitted into the hospital for a fresh attack of bronchitis. On admission her lips were rather livid, and the cough and dyspnœa were very urgent. The pulse was 100, and very feeble; and the patient had a languid, exhausted aspect, and complained much of weakness and of inability for exertion. The chest expanded imperfectly, being for the most part simply elevated during inspiration by strong and well-pronounced action of the cervical muscles. The thorax was resonant on percussion from apex to base, and comparatively so even over the precordium; posteriorly, also, it was abnormally resonant, excepting over the base of the right lung. The impulse of the heart could neither be seen nor felt in its normal situation; and respiratory sounds were heard over the cardiac-region. The heart-sounds were free from murmur. Rhonchus, sibilus, and moist râles were abundantly audible over both lungs. The cough was hard, dry, and exceedingly troublesome, and the expectoration was very scanty. The urine was acid, specific gravity 1018, and non-albuminous. I ordered a hot linseed-meal and mustard poultice to be applied over both the front and back of the thorax, the compound senega draught, with five minims of wine of ipecacuanha, and twenty minims of tincture of henbane, to be taken every six hours, and five grains of the compound pill of hemlock every night at bedtime. I also ordered her to have a liberal diet of eggs, beef-tea, and milk, with six ounces of brandy in the twenty-four hours. Under this treatment the cough became looser and less troublesome, and the expectoration much more abundant, somewhat opaque, and occasionally streaked with blood. On April 30th, the patient was noted as decidedly improving, and as sleeping quietly for several hours at night; but the respiration continued very laborious. The epigastrium and lower costal regions below the fifth rib, the lower part of the sternum, and also of the thorax posteriorly, were drawn inwards during the act of inspiration; the lower part of the abdomen, on the contrary, was protruded. Rhonchus and sibilus were heard over the whole chest; moist crepitating sounds in the bases of the lungs only. The pulse was 70, small and compressible. The fits of coughing were long, and the patient was expectorating much opaque adhesive mucus, chiefly of a yellowish, but sometimes of a slightly rusty hue. On May 11th, the pulse was only 60, very small and compressible; the cough had become much less troublesome, the respiration less laborious, and, with the exception of some faint crepitation in the bases of the lungs, no adventitious sounds were discovered on auscultation. She was now ordered to take half a drachm of the syrup of iodide of iron three times a day, and, being in a better state than was usual with her, was discharged as convalescent on May 11th. She continued, however, to attend as an out-patient until the month of September, during which period she continued to take the chalybeate in the day time and the hemlock pill at night, and remained free from any accession of bronchitis. On the 14th of September she came to inform me that she was about to go to Ireland, when the following last notes of her case were taken:—Pulse 66, small and feeble; respirations 24, comparatively tranquil. The sterno-cleido-mastoid muscles were in slight action even in ordinary respiration, and the epigastrium was still retracted during inspiration. The abnormal resonance of the chest remained unabated; no cardiac impulse could be seen or felt. The heart-sounds were distinct, and free from murmur; but the first sound was prolonged and accentuated, The respiration was dry and harsh; no moist sounds were anywhere audible; the sound of expiration was much prolonged. The patient considered herself to be much improved, as in truth she was, and said that she had little shortness of breath even on moderate exertion, excepting in the morning, when she usually had a long abortive fit of coughing, and raised with difficulty a very scanty sputum. During the day-time she had very little cough, and no expectoration.

To this case the term bronchitic emphysema may be applied in the strict sense of the words; for the emphysema, so far as I could ascertain, had undoubtedly resulted from the frequent and severe bronchitic attacks, extending over a period of six years. As might naturally be expected in such circumstances, the emphysema had come on slowly, and had been so masked by the urgent sufferings of the bronchitis, that the patient had only become conscious of its existence when it had nearly attained the advanced stage which we witnessed on her admission to the hospital. I have already said that there were no indications of any gouty or rheumatic tendency in this woman's case, and that her first attack of bronchitis supervened upon a definite and sufficient exciting cause. But there was one fact in her family history which bears upon the etiology of the bronchitis, and, therefore, indirectly also upon that of the emphysema, which was its secondary result. She stated that her father had died asthmatical at the age of forty-two. In the absence of more precise data I would by no means insist upon any precise interpretation of this term, but I think the woman may be fairly assumed to have inherited a tendency to pulmony affection, which could not fail to render her, after the occurrence of an accidental bronchial attack, more likely to become the subject of chronic pulmonary disease than another person in the same circumstances who had inherited no such tendency. With regard to the emphysema in this case, it appears to have been the immediate result of the bronchitis, and to have arisen mainly from the over-distension of the air-cells during the violent and prolonged fits of coughing; but, of course, it may be a question whether hereditary delicacy in the tissues did not play a part in impairing their normal powers of resistance. It may be a question also whether repeated attacks of bronchitis do not in themselves lead to such defective nutrition of the pulmonary tissue as to diminish its proper tone and elasticity, and thus to favor the development of emphysema. In such cases, however, the emphysema would be none the less the direct result of the bronchitis, although not, as usually regarded, solely the result of mechanical causes. There are some points connected with the mechanism of the respiration in this patient to which I shall briefly revert, after reading you my notes of another case in which the same phenomena were exhibited in a still more marked degree. But, before passing on the other case, I should wish you to remark the striking improvement of this patient under treatment. For more than a year previous to her coming under observation she had suffered continuously from cough and dyspnœa, even when at rest; but when I last saw her she had for several months had scarcely any cough or dyspnœa except on first rising in the morning, she had no expectoration, and her breathing was much less labored. In the first place I had prescribed only remedies calculated to relieve the bronchial irritation; but as soon as this was subdued she was put upon a course of the iodide of iron—a medicine which I have found of great value in cases of pulmonary emphysema during the intervals between intercurrent attacks of bronchitis. Emphysematous patients are usually more or less anæmic, and, therefore, any form of chalybeate will often be serviceable; but the syrup of iodide of iron has appeared to me in many cases to have a quite peculiar efficacy in restoring tone to the system, and, as in this case, diminishing the liability to fresh accessions of bronchitis, thereby retarding, also, the further development of the emphysema. I come, lastly, to that other case to which I have alluded, in which the emphysema appears also to have been the direct result of repeated attacks of bronchitis.

W. C——, aged fifty-five, a man of clear florid complexion, a coachman, was admitted an out-patient under my care on Nov. 10th, 1864. He had for several years been subject to cough in winter, but was always comparatively free from it in summer. He had had no symptoms either of gout or rheumatism; nor, so far as he was aware, had he any hereditary right to either of these complaints, or to any form of pulmonary disease. For a month previous to his admission he had been suffering from his usual winter cough, attended by a great degree of dyspnœa, and by a thin frothy expectoration which was occasionally streaked with blood. On admission, his skin was cool and moist; pulse 79, of good volume; tongue much furred. The respiration was laborious the muscles in the front of the neck being in powerful action. The chest was broad and rounded in front, but flattened at the sides. It rose uniformly on the two sides, but expanded imperfectly; and the supra-clavicular spaces were depressed into deep cavities during inspiration. The chest was resonant on percussion in front from apex to base on both sides, even over the precordium, and also posteriorly over the bases of both lungs, but more especially the left. A dry crepitating sound was heard with inspiration at the third intercostal space on either side, together with rather fine mucous crepitation in the base of the left lung. The expiration was prolonged, and in the bases of both lungs posteriorly was superseded by grave, snoring, rhonchus. The heart was displaced downwards and inwards; its impulse was only perceptible at the epigastrium, where also its sounds were best heard, they were free from roughness or murmur. I need not detain you with further details of the case on that occasion: the man improved much under treatment, and was discharged early in the year 1865. In December of the same year he presented himself again in the out-patient room suffering from his former ailments. His breathing was more laborious, not only the muscles of the neck, but the abdominal muscles also, being now actively engaged in assisting the respiratory efforts. The sounds on percussion and auscultation remained much as before. He again derived benefit from treatment, and kept fairly well during the summer, but never lost the dyspnœa, and applied again for admission in January last (1867), when it was obvious at first sight that he was suffering from an attack of recent bronchitis engrafted on his chronic ailments, and that his respiration was unusually laborious even for such a condition. On the removal of his dress, the muscles in front of the neck and the abdominal muscles were seen to be in almost spasmodic action. The chest expanded very little, but was forcibly dragged upwards in front during the act of inspiration. The lower intercostal spaces were widened, but well marked, and at the moment of inspiration were distinctly drawn inwards. At the same moment the epigastrium was also drawn inwards and upwards in such a manner that the lower margin of the ribs formed a prominent ridge round the front of the abdomen. The chest was everywhere resonant, both in front and behind. Cooing râles were heard over the chest, with dry crackling as before at the third intercostal spaces, but no moist sounds. The heart sounds were still normal, the skin cool, tongue clean, pulse 76, and respirations 26. The urgent bronchial symptoms having been first relieved by the use of sedatives and of the senega draught, I gave this patient also the syrup of iodide of iron in combination with small doses of strychnia. He is now in a much less distressing condition, but still suffers from extreme dyspnœa on the slightest exertion; and, indeed, I need scarcely tell you that no treatment can avail in such a case to restore the breathing even temporarily to any such comparative state of comfort as that attained by the patient H. B—— when last seen. The dyspnœa will continue, and be further aggravated by the fresh attacks of bronchitis from which the man will inevitably suffer on every fresh exposure to winter cold.

You cannot fail to have noticed, in the description of this patient's condition, the perversion of the mechanism of respiration, which existed in his case to an unusual extent, and to which I alluded as exhibited in a less marked degree by the patient H. B——. The lower aperture of the thorax, instead of being widened at the moment of inspiration, appeared to be narrowed; the lower intercostal spaces and the epigastrium were retracted, and the upper part of the abdominal walls drawn inwards and upwards, so that during the act of inspiration the margin of the ribs formed a prominent ridge. These phenomena are rare, occurring only in cases of emphysema involving extreme degrees of dyspnœa, and are indications of the comparative fruitlessness as well as of the violence of the inspiratory efforts. When, as in this case, the lower aperture of the thorax becomes narrowed instead of being dilated at the moment of inspiration, it would seem as though the depressed and flattened diaphragm produced by its contraction the effect rather of diminishing than of enlarging the capacity of the thorax, and thus of counteracting rather than of aiding the inspiratory efforts.

In concluding these remarks, I must remind you that, although, for the sake of clearness in explaining to you the different factors which may produce pulmonary emphysema, I have been obliged to divide cases of that disease into groups, according to the predominance of one or other of these factors, you will find in practice no such sharp lines of distinction. The two factors, degenerative change in the pulmonary tissues and mechanical over-distension of the vesicles by air, may and do combine, so to speak, in every varying shade of proportion; so that, although in an occasional case here and there, such as some of those I have selected for relation, the action of the one or of the other may have been so obviously predominant as to be entitled to rank as the exclusive cause, in the infinitely larger number of cases lying between these extremes it is often impossible to determine the precise degrees in which the two factors have respectively contributed to the result. We can only say with confidence that both have been at work.

# Clinical Lecture

ON

# HYSTERICAL VOMITING.

*Delivered at Charing-cross Hospital.*

BY HYDE SALTER, M.D., F.R.S.,

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GENTLEMEN,—There is no symptom having more varied relations, or a wider range of pathological significance, than vomiting, and none, therefore, in which more care is necessary in diagnosing, in any given case, its precise nature and indications. It may be a symptom of so trifling a character as hardly to deserve the name of a symptom, but rather to be a healthy and natural phenomenon, or it may be the gravest symptom of a fatal disease. An infant's stomach is a little too full of milk, and it vomits; it has hydrocephalus, and it vomits. There is hardly any pathological state with which it may not be connected; there is hardly any organ of the body from disease in which it may not result. A man has a blow on the head, or a tubercle in the brain, and he vomits; the heart's action fails, and the syncope is accompanied by vomiting; a man has tubercles in his lungs, and he vomits; the liver is enlarged, and vomiting is a symptom of it; a man has kidney disease, and vomits; a woman has an impregnated uterus, and vomits; a boy has a blow on his testicles, and vomits; a girl has ulcer of the stomach, and vomits; a calculus is passing down the ureter, and the patient vomits; a child's blood is contaminated with the poison of scarlatina, and he vomits; a man has colic, and he vomits; an emotion of disgust passes through the mind, and the subject of it vomits.

Vomiting, therefore, *per se*, tells us nothing; it tells us, indeed, that the stomach has returned its contents, but it tells us nothing more; and if we want to know anything more about it, and to ascertain its real meaning, we must seek it in the antecedent and attendant circumstances of the case. Thus vomiting must be always studied in the light of its surroundings.

In relation to *diagnosis* the great thing to be determined with regard to vomiting is, whether it is primary or secondary. By primary vomiting I mean stomach vomiting, that which depends on some diseased state of the organ which effects the act. By secondary vomiting I mean that in which the stomach is affected secondarily to some remote organ—as in head vomiting, kidney vomiting, uterine vomiting. In relation to *prognosis* the most important thing to determine is, whether the vomiting has an organic cause, or merely depends on functional disturbance. As examples of this method of classification I should call the vomiting of ulcer of the stomach, "primary organic vomiting"; that of some dyspepsias, "primary functional vomiting"; the vomiting of hydrocephalus, or of Bright's disease, would be "secondary organic," and that of syncope, "secondary functional." I think this is a classification that may be found practically useful.

I wish to-day to call your attention to a case of vomiting of a curious and interesting kind—interesting from the peculiarity of its phenomena, and interesting in relation to diagnosis. Before making any comments about this case, or giving you any hints as to its nature, I will read you the full history of it.

Eliza T——, aged nineteen, one of eight children, all living and all healthy; her parents living and healthy, and residing at Bushey in Herts; of fair complexion, with light hair and eyes, and, rather thin, but not very; has, with the exception, of her present symptoms, always enjoyed good health. But all her life, as long as she can remember, she has suffered from the two classes of symptoms which now principally characterise her state—anomalous irregular pains in various parts of her body, and vomiting. They however suddenly acquired a much greater intensity when she began to menstruate, which was when she was about fourteen years of age, now five years ago. But as long as she can remember they have existed; back into her earliest childhood she recollects that she used to throw up her meals almost immediately after swallowing them. But the vomiting was not so persistent and invariable as it has been for the last five years, and she would have intervals of a fortnight in which she would vomit nothing. She always had to take aperient medicine, or her bowels were never moved. Her appetite was always good, and as soon as she had vomited one meal she wanted to eat another. She always suffered from thirst. She never felt, and never feels *sick*—she vomited without any warning. She never had pain in her stomach after eating, but down in the left groin, where the act of vomiting gave pain. Until she menstruated she never vomited her supper—it was the only meal that she invariably retained; since that period she has thrown up her supper as well as other meals. She looked a healthy child, and had a color; she was nervous and excitable, and easily made to cry or laugh.

Then, five years ago, with the appearance of menstruation, these symptoms, as I have said, received a sudden increase of severity—the vomiting became constant instead of occasional, and other symptoms showed themselves. She began to have headache, which has continued ever since; and her other pains became much more severe. These pains principally lie at the bottom of the back and lower part of the abdomen, and the genitals are the seat of the worst pain of all. The pains extend down the legs, with a numby, burning feeling. Two years ago she lost the use of her left arm every morning, so as to be unable to lift it to her head or to hold anything in her hand; as the day advanced this would go off; she had it up to within the last six months, and then it gradually left her. A twelve-month ago she began to be troubled with a lump in her throat; she has it just before she vomits, and the vomiting seems to relieve it. Sometimes she has it without any vomiting at all; indeed, it has been at its worst when the sickness has temporarily ceased. It feels like a ball in the throat, as if it would choke her; and compels her to keep on swallowing in order to get her breath. The pain in the lower part of the back extends across the sacrum from hip to hip, and is of an aching character, accompanied with darting pain into the pudenda. The pain in the pudenda sometimes amounts to an agony, so that she can hardly tell how to bear it; it keeps her awake at night, and often makes her cry. It is a sharp shooting pain—it comes, and is gone; but just before she becomes unwell the paroxysms are so frequent that the pain is almost constant. The parts are tender, and sometimes it seems when she walks as if something pricks her. She has an almost constant desire to pass water, and cannot hold it for long; if she attempts to do so, it puts her in great pain. She cannot tell how many times she passes it in the day, and in the night she often has to get up two or three times in order to relieve herself. As soon as she passed water she seems to want to pass more. The water is very pale—sometimes quite white, like spring water,—and very abundant. But at the monthly period, although the want to pass water is more urgent than at any other time, she passes less than usual. At this period it gives her great pain to have her bowels moved, but not at other times; she then also is troubled with piles, which vanish when menstruation ceases. Her headache is frontal: the worst time for it is the afternoon, as soon as she has had her dinner. This is much worse also at the monthly period.

For the last twelvemonth she does not think she has passed a day without vomiting, with the exception of three occasions since she has been in the Hospital. As a rule, she has vomited every meal she has swallowed; it comes up immediately, even before she has finished eating. She sometimes vomits part, and then finishes the meal afterwards. Even the vomiting does not for a moment interfere with her appetite; she always feels hungry, even craving. She is equally prone to vomit one meal as another; but while the breakfast and the tea come up without any effort at all, the dinner is often brought up with difficulty and violent retching. In quantity the vomited matters seem generally quite as much as she swallows, and sometimes more. The food comes up unchanged, just as she swallows it. As a rule it comes up directly, and if she does not vomit at once she does not vomit at all; on some rare occasions, however, food has remained in her stomach as long as twenty minutes, and has then come up. At her breakfast and tea the return of the food hardly seems to deserve the name of *vomiting;* it seems simply to rise into her mouth. One very curious thing is that she cannot be sick if a stranger is present; she is obliged to go away in order for the food to come up. It occasions her great discomfort, and "seems to want to come up," but it does not actually rise to her mouth till she goes away; she thinks it would eventually, but would take a much longer time. As soon as she goes away, or the person goes away, it is up in her mouth at once, and the thing is over. Any member of her own family, or anyone she is accustomed to, has not the same influence; it comes up as well in the presence of anyone she is "used to" as if nobody was present. Fluids seem to come up with much greater facility than solids, and that is the explanation of the much greater ease with which the breakfast and tea are discharged than the dinner. If she takes broth for her dinner, it comes up as easily as her breakfast and tea. If she takes her pill with some water, the water immediately comes up, but not the pill; if she takes it with a scrap of bread, nothing comes up.

She came into the hospital exactly six weeks ago to-day, and she has vomited every day except on three occasions: one was a month ago, from Saturday morning to Monday evening; the second a fortnight ago, from Friday morning till the following Tuesday evening; and the third last week. On all these occasions everything was kept down. She was not menstruous at either time. During these times she felt much worse—More pain towards the groin and genitals, and the bowels full and hard. On the first of these occasions she had just begun to take some pills containing a grain of oxalate of cerium, a twelfth of a grain of morphia, and three grains of extract of hyoscyamus. She began these pills on the Friday, and on the Saturday morning her stomach ceased to return the food. On the Monday evening, however, the sickness reappeared, so that if the pills had any efficacy they soon lost it. On the second occasion, which was longer—nearly five clear days,—there was nothing apparently to account for the remission. On the third occasion the sickness suddenly and entirely ceased for three days, on my colleage, Dr. Pollock, who was that day seeing my patients for me, giving her teaspoonful-doses of camphor mixture every hour: it seemed to act like a charm, and from the first dose the sickness ceased. Three days afterwards she became menstruous, and the sickness immediately returned. The camphor water was continued, but it had now lost all efficacy.

And yet, in spite of the retention of so little food, this young woman does not look ill: making allowance for her fair complexion, I do not think she looks even delicate, or that she would strike one as having anything the matter with her. She is not by any means emaciated; and it is quite certain that, in spite of appearances and her own impressions, she must retain a good deal of what she swallows. She has certainly gained flesh since she has been in the hospital, and has more color.

Now what is the nature of this singular case of vomiting? Is it organic? Is it functional? Is it dependent on primary stomach mischief? Or is it dependent on some remote cause, the stomach affection being secondary? The three forms of vomiting that we find the commonest in young women (putting aside the vomiting of pregnancy) are—(*a*) Some form of dyspetic vomiting; (*b*) the vomiting of ulcer of the stomach, and (*c*) hysterical vomiting. Is it any of these; and if so, which?

In the first place, is it any form of dyspeptic vomiting? The girl has not a single dyspeptic symptom; there is no pain after eating, no flatulence, no pyrosis, no epigastric tenderness, and the appetite is always good; indeed she is always hungry, the vomiting not interfering with her craving hunger even for a moment. Moreover, in spite of the vomiting, there is no nausea, no sense of sickness, which is always present in dyspeptic vomiting. Then again the vomiting has no relation to the digestibility of the food, but seems quite independent of it; the most wholesome things have been vomited the most, while the most indigestible have been retained the best; fluids even have been vomited more than solids, whereas in dyspeptic vomiting it is almost always solids that are rejected. Moreover, if the vomiting arose from dyspepsia she would suffer more in her nutrition, in which she can hardly be said to have suffered at all. Indeed, considering the quantity that the stomach rejects, her condition is such as to show that her power of assimilation must be remarkably good.

In the second place, is the vomiting the vomiting of gastric ulcer? There are four symptoms which we may almost call the essential symptoms of ulcer of the stomach, and on the presence of which, in almost all cases, the diagnosis rests—pain after eating, having a certain seat; epigastric tenderness on pressure; the vomiting of food; and hæmatemesis. Of three out of the four she has not a trace: she has never vomited blood, she has no tenderness on pressure at the pit of the stomach, and she has no pain after eating. Under such circumstances I should not hesitate to say that it is absolutely impossible for the vomiting to depend upon gastric ulcer.

There remains then the third hypothesis, that the vomiting is what is called hysterical vomiting. Let us see what is the evidence on this point.

In determining whether any symptom is hysterical, we are often guided by the existence or not of other signs of hysteria—by signs which tell us whether the individual is one in whom hysterical symptoms are likely to occur. These presumptive circumstances in favor of hysteria are in this case very strong. In the first place, we have evidence of hysterical tendency. The girl was nervous and excitable as a child, and subject to hysterical paroxysms both in childhood and recently. Her manner and aspect are characteristically what are called hysterical: she speaks to you with averted eyes, and never looks you full in the face; she is nervous, fidgety, twitching, and restless; she has a "hang-dog," sullen, glum expression, and an "injured" manner. Then she has those two characteristic symptoms of hysteria, the passage of what is called hysterical water, and the lump in the throat. The topography also of most of her symptoms, except the vomiting, is such as we see in hysteria: they are almost all of them pelvic—the pain in the lower part of the back, in the genitals, legs, and groin, and the painful micturition. It is extremely common for morbid sensations having an hysterical origin to group themselves in the neighborhood of the generative organs; and in any case of supposed hysteria such a localisation would, to my mind, be a strong presumption in favor of such a diagnosis.

Then, again, the aggravation of the symptoms at each monthly period points to the same conclusion. The headache is then worse, the paroxysms of pain in the genitals are then almost constant, the irritability of the bladder is greater, and pain is then felt, and only then, on passing her motions. The sudden aggravation of the symptoms at the establishment of the reproductive function is, in relation to diagnosis, a congruous circumstance: she never vomited her supper till she menstruated; then the vomiting became constant instead of occasional, then the headaches commenced, and then the other pains in sacrum, genitals, legs, &c., became suddenly worse.

But we have, besides all this presumptive evidence, specific and positive proof of the vomiting itself being hysterical. In the first place it was evidently nervous vomiting—that is, it was under nervous influence, for if a stranger was present it could not take place; then, again, it was worse at each monthly period, and, if stopped, always recurred at that time; then, again, as I have already mentioned, it became more marked and constantly when menstruation was first established. It had besides evidently a vicarious relation with her other hysterical symptoms; when she does not vomit, the pain in the genitals is worse and the lump in the throat;—that is, if the hysterical state does not manifest itself in one way it does in another. Lastly, the character of the vomiting itself is such as we see in nervous vomiting, and therefore such as is compatible with an hysterical interpretation of it; and not such as we see in primary stomach vomiting: there is no nausea, no warning of any kind, she never felt and never feels *sick*—the stomach simply empties itself.

Whether the loss of power in the left arm, recurring every morning for so long a time, was a form of hysterical paralysis, or whether it was that peculiar form of loss of power in the hand and arm in the morning which I have seen in many females, and which I believe to be rheumatic, I will not say, and therefore I will not give it any weight as a symptom.

It may be objected that the vomiting could not be hysterical because it occurred habitually before the functions of the uterus were established—back into her early childhood, as long as she can remember, the girl says that she was troubled with this symptom. But this objection I think amounts to little more than a proof that the word *hysteria* is a bad word for that which we mean to designate by it. It is quite certain that children may show all the symptoms of what we call hysteria long before menstruation commences: and when I call this case a case of hysterical vomiting, I mean that the vomiting is a symptom of that morbid irritability that we so often see in females, that depends on the impressibility and mobility of their nervous organisation, and is oftener set wrong by derangement of the sexual functions than by any other cause. Hysteria depends on type of nervous organisation, and not on the possession, or the disturbed function, of a uterus.

A word about the thirst. The girl says she was always thirsty, and is so still. Has this symptom any independent meaning or value? I think none at all. I think it simply points to the vomiting, and simply depends upon it. The thirst of vomiting is something of the same nature as the thirst of hæmorrhage, except that in the one case the thirst depends on a demand for water to make up for the circulating fluid that has been lost, and in the other on the fact that the vomiting prevents the water constantly demanded by the blood from ever reaching it in sufficient quantity. The state of a person who always vomits fluid the moment it is swallowed is very much that of a person who never drinks. Wherever there is constant and immediate vomiting there is thirst.

I may here mention a case that occurred to me not long ago in private practice, presenting many points of resemblance to the one I have been commenting on, and evidently belonging to the same class.

C. B——, aged seventeen, a young lady living in Essex, called on me the 4th of last October. She was then rather thin, although she had formerly been stout. She stated that she was regular, and was quite well up to the end of June, when she began to vomit. The vomiting then went off for about three weeks, then came on again and has continued ever since. Of this vomiting she gave me the following account. It comes on quite suddenly, without any warning: but sometimes is preceded by "windy spasms," with eructation. She never vomits without having taken food. There is no pain or tenderness in the epigastrium, but there is pain in the right hypochondrium and in the chest; the pain in the right hypochondrium is worse when she is fatigued—that in the chest just after vomiting. There is no nausea, but the food suddenly comes up; without any distinct act of vomiting at all, it suddenly appears in the mouth. As she is sitting at her meals, before she has finished, she has to rise and run away; sometimes the food has not been swallowed a minute. It is always unchanged. Some things are never vomited, and the choice is most capricious. The things that have been best kept on the stomach are fruit (even nuts), oysters, bran biscuits (a sort of gingerbread nuts), toast, and tea. The things that are the most invariably returned are meat and milk; the milk is thrown up at once. Bread is now at once returned, especially for the last four days. Pastry was kept down for some time, but now that is returned. Vegetables are returned. Wine, brandy-and-water and beer return immediately. She is always hungry; bowels disposed to be confined. She is very nervous and excitable, and three weeks ago had hysterical paroxysms, from which also she suffered when she was a child. The following additional facts were communicated to me by her medical attendant. "The vomiting is worse towards the latter part of the day. Her sister states (in strict confidence) that what she steals (that is takes on the sly) is more frequently retained than anything else. The substances the most easily retained are what one would call indigestible. I have witnessed one or two attacks of the vomiting. She would be sitting at table at her meal, get up, go out of the room, and the food would be found almost unchanged. There would be but little retching; the food seemed to come up as easily as in an infant. As fruits, whether pulpy or oily, are the substances most easily retained, I have ordered her to eat freely of them." I was subsequently informed by the same gentleman that she was a young lady who habitually gave way to the most violent and uncontrollable outburst of emotion, so that the peace of her family was quite compromised by them.

The chief points which this case and that of Eliza T——have in common are—the evidence of nervous and excitable temperament, and of liability to hysterical paroxysms; the absence of all symptoms of dyspepsia or disease of the stomach; constant hunger; the ease and absence of effort with which the food rises into the mouth; that the vomiting comes on without any warning; that it is unaccompanied by nausea; that it never occurs except immediately on taking food; and that the tendency of food to cause vomiting is entirely independent of its digestibility.

And now, gentlemen, I suppose you will hardly be contented if I dismiss you without saying something about the treatment of such cases as these. But in truth, I have little to tell you, except this—that you will find them among the most unsatisfactory cases in the way of treatment of any that will come under your observation. There is, indeed but little to be done for them. On one point you may make up your minds: it is of no use to treat the stomach. I believe in most of these cases there is nothing wrong with the stomach whatever. What you have to treat is a certain condition of the nervous system. *You must cure the hysteria.* Now you know how difficult a problem that is. As long as the hysteria remains, so long will its particular manifestation, whatever it may be, and whatever organ it may affect, remain also. In the case of Eliza T——, we employed every remedy we could think of to allay the irritability of the stomach, but without any but the most doubtful and evanescent effect. We gave her all kinds of sedatives—opium in various forms, hyoscyamus, belladonna, conium, hydrocyanic acid; we tried creasote, bismuth, oxalate of cerium; valerian, ammonia, ether, assafœtida; shower-bath, iron, quinine—in fact, we exhausted all our resources, both in the treatment of the symptom and of the essential morbid state,—and all in vain. I do not mean to say that all treatment in such cases is necessarily inoperative, but that in order to be operative it must appeal to the state of the nervous system, and that it will only control the sickness in as far as it controls the hysteria. There is one event, however, which, if it could be brought to bear upon either of these cases, would, I believe, at once stop the sickness, and that is the induction of maternity. When the subjects of such symptoms marry, all vomiting ceases; or rather the particular kind of vomiting they have suffered from is exchanged for another and more temporary and tractable kind of sickness—a very wholesome and justifiable form of homœopathy, a rational and intelligible example of "*similia similibus*."*

# Clinical Lectures.

## ON DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir Henry Thompson,

Surgeon-Extraordinary to H. M. the King of the Belgians
Professor of Clinical Surgery, and Surgeon to
University College Hospital.

### LECTURE X.

### CYSTITIS AND PROSTATITIS.

Gentlemen,—It is quite possible that you may see little or nothing, even during a considerable experience of general practice, of those diseases which have occupied our last three lectures, Some men never meet with a case of stone in the bladder during a lifetime, and of those who do very few undertake themselves to treat it. But the very reverse of this is the case with the subject which comes before us to-day. Fraught with much less of what one calls "interest" for an operator, its attractiveness to the student must be found in the fact that cystitis, or inflammation of the bladder, is the commonest affection of that organ, that it is certain to occur in his practice, and probably not unfrequently. For, whatever else you may have in connexion with the urinary organs, you are certain to have cystitis. If a man has stricture severely, or stone, or disease of the kidney, or disease of the prostate, sooner or later he has cystitis, either acute or chronic, the symptoms of which are often the most prominent features in all these diseases.

Then I beg you to remember that cystitis has almost always some ascertainable cause, and that it very rarely indeed appears in what is called an idiopathic form. You will find that there is, or has been, gonorrhœa, or stricture, or disease of the prostate, or retained urine, or urine altered in character, or some other such cause; and if you have readily come to the conclusion that any case before you is idiopathic, suspect that you have not discovered the cause, and that the probability is that you have not searched deeply or carefully enough. Here and there the true pathology will elude our best efforts. Possibly you may be forced to attribute it to a gouty diathesis. A very refuge in time of trouble for practitioners of feeble diagnostic power is gout, particularly "suppressed gout;" therefore beware of it. And while, I think, it must be admitted that inflammations both of the urethra and of the bladder may be sometimes mere local developments of the ubiquitous influence so named, I am sure that this cause is of exceedingly rare occurrence. Certain irritant poisons also—amongst which cantharides is the most prominent and likely to be met with—occasion cystitis, which I have seen severe in character, and lasting from ten to twenty hours, as the effect of an ordinary blister.

First, then, I shall call your attention to acute, and secondly, and chiefly, to chronic cystitis.

Acute cystitis appears in two very distinct forms; one which is severe and dangerous, the other which is much less so.

The dangerous form is that which accompanies the most severe lesions to which the bladder is exposed. The first breaking up of a large and hard stone into large fragments, either spontaneously or by the lithotrite, has sometimes caused it; violence to the bladder in lithotomy and the like are causes. Rigors, bloody urine, extreme pain and irritability of the organ, announce the fact, and the patient succumbs in a few days. At the autopsy you will see the lining membrane of a dark-crimson hue throughout, or nearly so, and often spots where it appears to be sloughing and exposing the muscular fibres.

The less severe form of acute cystitis is common enough. There is reason to believe that the neck of the bladder is the part mainly affected in these cases; and the reason for this is that what we call cystitis is often really inflammation of the prostate mainly, or of the urethra passing through it, entirely so perhaps at first, and that the mucous membrane of the bladder is affected by extension. And as anatomically I don't know how to make an accurate separation between these two organs, it is often legitimate to speak of this affection as "inflammation of the neck of the bladder." After gonorrhœa, or from external cold and damp, and in connexion with many circumstances of no very great importance, a man becomes the subject of frequent and painful micturition, and has a sense of aching or gnawing pain above the pubes; while the urine is cloudy from an increase of the natural mucus of the bladder (not the tenacious viscid secretion, mind, which I shall speak of under the head of Chronic Cystitis); and there is usually some constitutional sympathy with the local disturbance, evinced by loss of appetite and general feverishness.

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* Since this lecture was delivered, I have taken into the hospital, and have at the present time under my care, a case belonging to the same class as those I have narrated. A young girl, aged eighteen, of most healthy appearance, fair, fleshy, and rather florid, who began to menstruate at the age of twelve, and has done so regularly every three weeks ever since, is seized on each occasion, just one week before the menstrual discharge takes place, with vomiting. She vomits throughout that week and throughout the menstrual week. Then the vomiting ceases, and she has no more of it till a week before the next menstrual period, when it recommences. This has gone on for years. During the vomiting period she throws up everything—as soon as the food is down it is up again. Half way through a meal the food comes up, and then the meal may be completed, for the rest to come up, afterwards. But it is evident that a good deal must be retained, as her nutrition is not in the least impaired. There is no nausea, no violent retching, and no symptoms of indigestion. There are, however, well-marked symptoms of hysteria. Soon after coming into the hospital she lost the power of her right side, and it became partially numbed: the right hand then became affected with a sort of choreic rotatory tremor, like paralysis agitans, which lasted for a week or two: since that all these conditions have gone off—the loss of power, of sensibility, and the tremor, and she can now use her right hand as well as her left. She has constant headache, and pain in the lower part of the bowels, worse at night. Her past history is full of hysterical vagaries. The result of all our treatment has been that the vomiting holds on its way unchecked; nothing appears to influence it in the smallest degree. She vomits now as she did when she was admitted, and so she will when she leaves the hospital.

The treatment consists in mild laxatives and diuretics, demulcents, hot hip-bath, local poultices, anodynes if necessary, and certain infusions, of which I shall speak hereafter.

But that which most requires our attention is the chronic form of the disease. It is that which requires the most care and judgment, and for which we have most to do in the shape of treatment. Chronic cystitis also appears in two distinct forms. In the simpler, there is little else than some increase of the natural mucus from the bladder mixed with the urine. Just as when you have a common cold, there is inflammation of the muscous membrane of the nose and towards the frontal sinuses, with increase of its secretion, so the mucous membrane of the bladder adds mucus to the urine; and the inflamed mucous membrane, being more sensitive, will not permit itself to be extended by accumlating urine, but forces the bladder to expel it as soon as possible: hence the frequency of making water. But, besides this, there is another form, in which the mucus has a distinct character. It is often spoken of, and not very wisely, as "catarrh of the bladder"—another example of an unfortunate term leading to error in practice. The mucus is very tenacious, and when you empty a vessel containing the urine of such a patient, it runs off first, and then a quantity of ropy mucus follows in a mass. You may see a pint or more of this material passed in the course of the day, and it acquires the viscid character on standing. Some patients pass it for months together, and such are said, especially abroad, to have "catarrh of the bladder," which, and there especially, is said to be a very dangerous and a very incurable disease. Indeed to tell a foreigner that he has "catarrh of the bladder" is to alarm the poor man exceedingly. Now this is because it is regarded as an essential disease, instead of a mere symptom; for of course it is no more a disease than dropsy is. Formerly you know we talked of dropsy as a disease, a very formidable malady, and it still is so to the popular mind; but no intelligent student would now, I suppose, be satisfied to think of it except as a symptom. He would say, "Is it due to cardiac, to renal, or to hepatic disease? What is the cause of it?" Precisely so is it with this "catarrh of the bladder," You inquire what is the cause of it, and you find in nine cases out of ten there is a very distinct cause, and mostly a removable one. You are not to be stopped by this name, and ask me what is good for catarrh: but you must carry further the diagnosis, and ascertain the precise condition which has occasioned it. And the most common cause is one too often overlooked, as I shall repeat—viz., inability of the bladder, either from atony of its coats or from prostatic obstruction, to empty its contents; yet it does by no means necessarily occur in these circumstances, and I cannot tell you at present how it happens that in some cases of retained urine it contains only some light flocculent mucus, and that in others there shall be a very large quantity of this tenacious matter.

With regard to the treatment, the first thing is to take care that the bladder is emptied by a catheter once, twice, or three times a day, in the easiest manner possible, of which I treated in the fourth lecture. And this is necessary because decomposing urine is a great source of irritation to the mucous membrane. The urea contained in the secretion which enters by the ureters in a healthy state is soon decomposed into carbonate of ammonia, and the ammoniacal salt is an acrid and irritating substance. You explain to your patient that his bladder, not having been emptied for many months perhaps, has acquired somewhat the condition which a badly washed utensil would have done in like circumstances—a useful and sufficiently accurate illustration for the lay understanding, and he will appreciate it when he finds, as he probably will, that the mucus diminishes considerably after a few days of this treatment. But suppose it does not do so, or does so but slightly, what then? I will tell you what sometimes happens, and I am not sure that the fact I am about to ask your attention to has been observed or recorded. It is this: *you cannot completely empty every bladder with the catheter.* When the prostate is irregular in shape and throws out protuberances into the bladder, there are sinuses or spaces between them, which retain one, two, or even more drachms of urine. Again, there are not unfrequently numerous small sacculi in the coats of the bladder which act in the same way. When obstruction at the neck has existed some time, the daily straining, although not considerable, necessary to expel the urine produces hypertrophy of the muscular bands which form that coat of the bladder. Now you know hydraulic pressure is equal in every direction, and in course of time the expulsive act gradually forces the mucous lining between the interlacing muscular bands, and little pouches result. In these it is not uncommon for calculi to be secreted, and thus in time encysted calculus is formed. In any case, however, those pouches become receptacles of urine, which becomes stale, and irritating in consequence. Now the mere withdrawal of the urine by catheter by no means empties the reservoir in these circumstances, and enough of noxious fluid is left therein to maintain the unhealthy condition of its lining membrane. What you have to do is, to wash out the bladder at least once a day with a little warm water before you remove the catheter. I am very particular indeed as to the manner of doing this. Washing out the bladder may be a very valuable mode of treatment, or a mere contrivance for seriously irritating that organ, according to the mode in which it is performed. A common mode, indeed that which I always saw employed some years ago, was to attach to the catheter (which was often of silver, and it is unnecessary to repeat my views about that) a large metal syringe, and to throw in with considerable force six or eight ounces of water. I wish you to cherish a wholesome horror of that proceeding; and in no case can it be necessary. A healthy bladder, and much more a tender one, can only be disturbed and pained by such a process. This sensitive organ is only accustomed to be distended gradually by the continued percolation into it of urine from the kidneys. Let your washing-out at least conform in some respect to that process. Never, under any circumstances, throw in more than two ounces; and even this quantity, for efficient washing, is better avoided. Proceed then as follows:—You have a flexible catheter in the bladder; have ready a four-ounce india-rubber bottle with a brass nozzle and stop-cock, the nozzle long and tapering so as to fit a catheter of any size between Nos. 5 and 10, filled with warm water—say at 100° Fahr. Attach the nozzle gently to the catheter, and throw in slowly a fourth of its contents; let that run out, and it will be thick and dirty, no doubt; then inject another fourth, which will be less so; again another, which will return clearer than the preceding; and the fourth portion will probably come away nearly clear. Now these four separate washings, of an ounce each, will have been really more efficient than two washings of four ounces each; and you will, in obedience to my never-failing injunction, have reduced the amount of instrumental irritation to a minimum. Ten to one but the patient will regard your performance as soothing to his feelings. There are other methods of effecting the object, but this is the *principle* I want you to understand; and the mode of carrying it out which I have described is one of the simplest.

What if this washing-out has not accomplished all we wish? We may then, and often with great advantage, try medicated injections. Perhaps the best mild astringent, when the urine is alkaline and depositing phosphates, is the acetate of lead, in the proportion of one grain to four ounces of warm water, not stronger; to be used once a day. After this comes the dilute nitric acid; one or two minims to the ounce of water. Then you may try nitrate of silver in small quantity, certainly not more than one grain to four ounces to begin with, going up to about half a grain, or one grain at most, to the ounce. You may also use, especially where the urine is offensive, carbolic acid; one or two minims to four ounces is quite strong enough. Then there is a soothing injection well worth your remembering—viz., biborate of soda and glycerine. It may be used where there is no great indication for an astringent, or it may be combined with one. The value of this for sore mouth suggested to me its use for an irritable bladder, and experience has confirmed my expectation. Here is my formula: Two ounces of glycerine will hold in solution one ounce of biborate of soda; to this add two ounces of water. Let this be the solution, of which you add two or three teaspoonfuls to four ounces of warm water. I arrange all these solutions for four ounces because the four-ounce india-rubber injecting bottle already described is a convenient and portable instrument.

In circumstances of great pain you may inject anodynes into the bladder if you please; but they are of little value. And you need not be afraid of the quantity; for the mucous membrane of the bladder appears to have no absorbing power, unlike the neighboring tissue which lines the rectum. And there, indeed, is your place for action, if spasm and pain greatly disturb the patient; a suppository of cocoa-nut butter, containing from half a grain to a grain of morphia, is often of the greatest service. Counter-irritants play a small part among our remedies; perhaps the best and safest is a hot linseed poultice, well sprinkled with strong flour of mustard, above the pubes. I cannot say much for croton oil, nitrate of silver, &c., there. Hot fomentations, in the form of bran bags, hot flannels, &c., alleviate pain materially; so also hot hip-baths and the hot bidet.

Then there is a host of infusions and decoctions reputed to exercise a beneficial influence in cystitis. I will name some of them in what I think to be about the order of their value for the cases one commonly meets with:—Buchu, Triticum repens, Alchimella arvensis, Pareira brava, and Uva ursi. Now, for the doses of these, your conventional tablespoon is a miserably inefficient measure. Of the first, fourth, and fifth give half a pint daily; of the second and third, a pint—that is of their infusions or decoctions, as the case may be.

The underground stem of the Triticum repens, or the common couch grass, was introduced some years ago by myself. Of this I will only say that it maintains its credit, and is undoubtedly very useful in many cases. For use, boil two ounces in one pint of water for a quarter of an hour; the strained liquor to be taken by the patient in four doses in the twenty-four hours. It was a favorite remedy in the old herbals; and it formed the staple medicine against what was called "strangury," which, a few centuries ago, meant everything like pain or difficulty in making water, no matter what the cause; for the art of diagnosis then was in its earliest infancy. The Alchimella arvensis, or "Parsley piert" (derived from "percer la pierre," and not a parsley or umbelliferous plant at all), has proved in my experience an admirable remedy in obscure cases. Use it as an infusion: one ounce to the pint. Besides these there are the resins, which have a certain amount of influence upon the mucous membrane of the bladder—such, for instance, as copaiba, Venice turpentine, &c. You should not, however, give the dose which you would give in gonorrhœa. Five minims of copaiba, three or four times a day in mucilage, often answers well. I may say the same of the oil of cubebs.

One word about alkalies. As a rule, no doubt, alkalies, in neutralising highly-acid urine, help to control chronic cystitis; and I like the liquor potassæ, as well as the bicarbonates, tartrates, and citrates, which appear to have more diuretic action, and to increase the quantity of urine, when you would rather avoid this action and lessen the frequency of micturition. The old combination of liquor potassæ and henbane, affirmed to be a union of incompatibles, nevertheless seems to me about the most valuable form in practice. I have no doubt that it is quite correct that both henbane and belladonna are deprived of their specific activities when mixed with liquor potassæ. Chemically I dare say that is so. But I am perfectly satisfied that this combination materially controls painful and frequent micturition in the complaint we are considering. Hence I have of late gone back to it, and for the reasons stated.

Now as to acids. Remember that these are by no means the complement of alkalies in relation to the urine. Beware of the popular notion that it is possible to produce an acid reaction on urine by giving mineral acids by the mouth. By giving alkalies you can make the urine neutral or alkaline to any extent you please, but you cannot do the converse with these acids. Yet I constantly hear it said, "The patient's urine is very alkaline; had we not better order acids?" My reply is, "By all means; give an ounce or two daily if you like but it will not change the reaction of the urine." I have given these quantities, greatly diluted, of course, without the slightest effect on alkaline urine. No doubt mineral acids are useful in giving tone, and so do good; but don't prescribe them with the view of acting on the urine. The acids that do act on the urine are benzoic acid and citric acid, but you have to give so much of these that I do not know whether the remedy is not mostly worse than the disease. The benzoic acid, having some balsamic character, may be useful in some cases of chronic cystitis. The best way to give it is in pills, as it is not soluble in water. Three or four grains, with one drop of glycerine, is a good form; and you must give as many as ten or twelve pills a day if you want to do any good. At all events, it is of no use giving less than six; that would be twenty-four grains in the day. Lemon-juice has also an acid influence on the urine, and if it agrees with the stomach may be taken in large quantity. But here is the important fact for you to remember. Surplus of acid in the urine is a constitutional error, and it enters the urinary passages at the kidney. It requires constitutional treatment, of the digestive rather than of the excretory organs, and mere alkaline treatment does but mask the acid, does not cure it. You have to remodel the patient's habits, control his diet, and take care that his liver and bowels act healthily and freely. On the other hand, persistent alkali in the urine is, in nineteen cases out of twenty, a *local* formation in the bladder. It requires local treatment, as by catheter and injecting-bottle, and not physic. Now and then you have alkaline urine, milky-looking, with amorphous phosphates, as a constitutional condition; but this is rare as compared with the cases I am now describing.

I shall close this lecture with some brief remarks on acute and chronic prostatitis.

Acute prostatitis occurs in different degrees of severity, and often comes first before the practitioner's notice when it causes retention of urine by obstructing the neck of the bladder. How this emergency is to be met I have described at some length in the fifth lecture. The organ is often considerably swollen and very tender, and the inflammation may give rise to an abscess in the substance of the gland, or adjacent to it; and the matter may burst either into the urethra, its most common course, or into the rectum.

Chronic inflammation of the urethra passing through the prostate, and more or less affecting the prostate itself, is a condition less generally known or recognised. Nevertheless it is a common and important affections. We see it frequently, not always, as the result of obstinate gonorrhœa. I have already referred to it as the cause of symptoms resembling, more than any other malady, those of calculus in the bladder when mild in degree. Thus a patient of twenty or thirty years of age tells you that the following symptoms have rather gradually appeared:—Undue frequency of micturition; pain following the act, and felt in the end of the penis; occasionally a little blood seen with the last few drops of urine, which may be a little cloudy with muco-purulent deposit; a sense of heat and weight in the perineum and rectum; there is, perhaps, also some gleety discharge in the urethra; and all these conditions aggravated by exercise. You see he gives you a complete sketch of the symptoms of calculus; and how are you to distinguish them? By the history and by sounding. Thus, there is no history of the descent of calculus from the kidney, nor of gravel previously passed. But there is the fact of a chronic gonorrhœa resisting, perhaps, months of treatment. And if the patient shows no improvement you must not decline to sound him. You do so, and find nothing, but that the prostatic urethra was very sensitive; and you make him a little worse, perhaps, for a time.

What is to be done? First and foremost, as a rule, abjure all instruments, which, in most cases, can only do mischief. Treat it as you would a chronic inflammation of the ear or eye—i.e., blister an adjacent surface; make a small blister every four or five days on either side of the raphé of the perineum, by applying with a brush the Lin. epispast. of the Pharmacopœia, not so freely as to distress him or prevent locomotion, and keep it up for four or six weeks. I have found the best results from this method, combined with a tonic medicine and regimen, and you will find the patient himself gladly exchanging the dull, weary aching in the perineum for the smart of the blister, and cheerfully noticing how the former gradually subsides under the influence of the latter. In exceptional cases, where chronic gleet is a prominent symptom, the application of a solution of nitrate of silver, not more than five or ten grains to the ounce of water, to the prostatic urethra, may be very servicable.

I shall in my next proceed with diseases of the bladder.

# Original Papers.

## ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

## AS EXEMPLIFIED IN PRIVATE PRACTICE.

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*(Continued from July No.—p. 403.)*

### THE HÆMORRHAGIC VARIETY OF CONSUMPTION.

So many cases of phthisis are accompanied by hæmoptysis[*] in some part of their course, most commonly in their early stages, that spitting of blood, or bursting a bloodvessel in the lungs, as it is popularly termed, is generally considered, both by the profession and by the public, as an indication of consumption. Not unfrequently it is the first symptom to excite alarm, and to apprise the patient and the practitioner of the existence of this grave malady. The experience of the most careful observers has confirmed the reality of this connexion. Louis states that, excluding cases of amenorrhœa and mechanical injuries to the chest, he did not find a single instance of hæmoptysis among 1200 cases unconnected with tuberculous disease of the lung. Sir Thomas Watson says: "If a person spits blood who has received no injury to the chest, in whom the uterine functions are healthy and right, and who has no disease of the heart, the odds that there are tubercles in the lungs of that person are fearfully high." (Practice of Physic, vol. ii., p. 200.)

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[*] Of the 500 cases tabulated for these papers, 278, or 55·6 per cent., had hæmoptysis.

These authorities are in accordance with our own experience; but we would here direct attention to the fact, connected with our present subject, that, although most cases of hæmoptysis (amounting to a drachm of blood and upwards) are connected with tuberculous or phthisical disease of the lungs, there are some varieties of disease in which the occurrence of hæmoptysis is so frequent and to so large an amount as to constitute the most prominent feature in the case, and that this hæmorrhagic tendency has important relations to pathology, prognosis, and treatment.

Upwards of thirty years ago one of us was led to trace the occurrence of hæmoptysis in phthisis to "a fragile state of the bloodvessels of the lungs, and an obstructing pressure upon them;" and of late years Dr. Radclyffe Hall[*] and others have ascertained this fragility to depend on fatty degeneration of these vessels in connexion with tuberculous disease. In a few instances portions of the pulmonary artery have been found in an aneurismal state in connexion with tuberculous lesions (Drs. Cotton[†] and Quain,[‡] &c.) There is reason to suppose that, although hæmorrhagic disease of the arteries is generally connected with tuberculous lesions in the lungs, it does not bear any proportion to the amount of these lesions, and that it may exist enough to cause considerable and repeated outpourings of blood when the tuberculous disease is very limited; and, on the other hand, extensive tuberculisation not unfrequently goes through its course without any hæmoptysis. In the former class of cases patients may be attacked with hæmoptysis, with little or no cough before or after the attack. In some of these the hæmorrhage produces no more than temporary alarm and weakness; it may even be beneficial; and the usual health is established between the attacks. In others, on the other hand, the phthisical disease sooner or later becomes more active, and the successive losses of blood produce not only weakness, but more cough and expectoration, and other signs of increased obstruction and destruction of the lung. These differences chiefly depend on the extent and situation of the tuberculous lesion. However small, if it happens to involve a considerable bloodvessel, especially any of those near the root of the lung, there may be abundant hæmorrhage for the time; yet, if this is stopped, the limited lesion remains quiet, and life and even health may be prolonged for many years. In several of the following examples the recovery has been so complete that it might be a question whether the hæmorrhage had its origin in tubercles at all; but in no instance were the signs of limited disease of the lung altogether absent; and in fact they were at first just the same as those of other cases which have afterwards gone on to indubitable phthisis. The difference between these cases may therefore be considered one of degree rather than of kind.

But hæmorrhage in the lung sometimes has serious and even fatal results of its own, distinct from those of pulmonary consumption in general. Thus it may cause speedy death by loss of blood, or by suffocation (as in Case 27). Fatal cases of hæmoptysis are happily more rare than is commonly apprehended. On a rough estimate we may state that in about two thousand cases seen every year, we do not meet with fatal hæmorrhage more than three or four times during that period. Still more rarely pulmonary hæmorrhage ends in diffuse suppuration and pyæmia, of which we give one example (Case 28), or in gangrenous abscess, which is not, however, equally fatal.

Case 21.—A clergyman, aged thirty-four, first consulted Dr. Williams on July 17th, 1848. After hard duty fourteen months ago he had hæmoptysis to the amount of two ounces, and in smaller quantity a week or two afterwards. Was much reduced by treatment, and wintered in Madeira with great benefit, and was well enough to ascend the Peak of Teneriffe without difficulty about six weeks ago; but has had cold and cough ever since. Physical signs: Dulness and tubular expiration in upper right chest. Bronchophony and mucous rhonchus below right clavicle. Ordered iodide of potassium and carbonate of potash, and a croton-oil liniment.

In August he had hæmoptysis in church at Brighton to the amount of an ounce and a half, which ceased under acetate of lead with a daily aperient draught. After this he took oil and got much better.

July 18th, 1849.—Well till last few weeks, when he had temporary cough.

July 9th, 1852.—Was well and doing double duty till a year ago, when he caught severe cold, and had hæmoptysis to the amount of three ounces; for which he was leeched and much lowered. Has lost much flesh and strength, has night-sweats, and expectoration has become yellow. Dulness and loud tubular sounds in the left mammary region. Ordered oil in tonic of nitric and hydrocyanic acids, with tinctures of hop and orange.

July 22nd.—Had hæmoptysis (four ounces), yielding to treatment as before.

In 1854 he went to Madeira, and passed a second winter with benefit. Married in 1856.

March, 1868.—Heard that he was quite well with a family of six children.

Since last visit has had two or three attacks of hæmoptysis, and some years ago severe bronchitis and congestion of the lungs. At present he is in excellent health, doing parish duty, which he has not omitted for more than two months at a time for the last twelve years. Nearly *twenty-one years* have elapsed since this patient's first symptoms.

Case 22.—A gentleman, aged thirty-eight, consulted Dr. Williams May 25th, 1850. Eight years ago had slight hæmoptysis; but has been well till within the last fortnight, when on leaving off his flannel, he was chilled and attacked with severe cough. A week later, after great exertion of voice, had slight hæmoptysis; and three days ago brought up several ounces of blood, the hæmorrhage continuing in spite of leeches being applied and gallic acid given, but was eventually restrained by Ruspini's styptic and the application of ice. Expectoration now streaked with blood of a florid hue. Bowels confined. Physical signs: Dulness and obscure moist crepitation in upper left chest, front and back. Ordered a mixture of tannic and nitric acids with henbane and every morning a draught of sulphate of magnesia and sulphuric acid. A blister to be applied to the chest, and acetate of lead and opium given, if necessary.

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[*] British and Foreign Med.-Chir. Rev., Oct. 1855.

[†] Med. Times and Gaz., Jan. 13th and Oct. 20th, 1866.

[‡] Path. Trans., vols. xvii. and xviii.

June 20th.—Has had no fresh hæmoptysis or cough. Expectoration tinged. Takes meat twice a day. Physical signs: Still dulness in left chest. Ordered oil in mixture of nitric and tannic acids with tincture of orange, a rhubarb and zinc pill, and vesication with acetum cantharidis on the chest.

Aug. 20th.—Continued better till after going up-hill at night, when he had hæmoptysis to the amount of half a pint. Same remedies used as before.

Oct. 10th.—Has been riding and taking oil regularly in the country, with great improvement in flesh and strength. Has gained one stone in weight. Physical signs: Dulness in upper left chest, and loud expiration in upper right.

March 13th, 1858.—Continued well and active, with good breath, till twelve days ago, when after an attack of sciatica—for which he took iodide of potassium,—he had hæmoptysis amounting to one ounce, which was subdued by tannic acid. Physical signs: Some tubular sounds above both scapulæ.

March 19th, 1862.—Well till three months at Scarborough, where he had cold and cough with expectoration, and occasionally hæmoptysis to the amount of a drachm, but has none at present. Physical sign: Tubular sounds above left scapula.

1868.—Heard that he was alive and well, *twenty-six years* after his first attack of hæmoptysis.

CASE 23.—A gentleman, aged thirty-six of strong large frame, consulted Dr. Williams first on June 19th, 1850. Had been in good health, with no cough; but after much exertion in May he expectorated half a pint of blood, and yesterday about the same quantity. Had been bled and leeched on the right chest, with diminution of the dulness; signs of congestion were found in the right lung. Pulse quiet; no cough; bowels confined. Ordered gallic and nitric acids, and digitalis; and an aperient of sulphate of magnesia with sulphuric acid.

June 24th.—Hæmorrhage returned slightly next day, but not since. Physical signs: Dulness and tubular sounds in the upper right front and back. A blister to the scapula; nitric and hydrocyanic acid mixture.

July 20th.—No return of hæmorrhage; cough slight. Has taken cod-liver oil with acid mixture a fortnight. Physical signs: Less dulness, but still large tubular expiration in the upper right front and back.

Sept. 26th.—At Norwood; taking oil &c. regularly. Much improved in flesh and strength. Cough and expectoration slight. Physical signs: Dulness and tubular expiration less marked.

June 21st, 1851.—Wintered in Madeira. Well but frequent colds from damp weather. Continued oil and acids till the last three months. Physical signs: Breath harsh and loud below right clavicle; little dulness and less tubular sounds in right back.

Sept. 25th, 1852.—Has continued well.

Nov. 24th, 1853.—Passed last winter with only one attack of cold and cough, when the sputa were discolored. Has been pretty well since; but has had an occasional feeling of oppression in the right lung, and three weeks ago, after much exertion of voice, brought up four ounces of blood, and some on the following days, when it was checked by gallic acid. Still much cough and wheezing. Urine scanty, red, and turbid. Physical signs: General wheezing rhonchi in right lung; little dulness or tubular sounds. Ordered a mixture of iodide of potassium, carbonate of potash, squills, stramonium, and liquorice, and a croton-oil liniment.

Under this treatment he soon got the better of this illness, and continued in good health, except occasional attacks of the same kind; more wheezy and asthmatic than phthisical. He continued active in business, and often gave lectures and spoke at public meetings, although warned against doing so.

Feb. 13th. 1863.—Three months before had coughed up four ounces of blood, and about the same quantity three days ago. Breath had been shorter since with more expectoration. Feels the cold more, but voice and muscular strength good. Urine often thick. Physical signs: Dulness and tubular sound at and above right scapula; moist crepitus and mucous rhonchus above and below. To take oil, with sulphuric acid calumba, &c.; saline at night.

June 18th.—Several times hæmoptysis this year; now about half an ounce daily, five days. Physical signs the same.

Dec. 27th, 1864.—Hæmoptysis recurred every two or three weeks till August, when he went to Bournemouth; none since. Has regained some flesh and strength. Physical signs: More extensive dulness, obstruction, and coarse crepitus over greater part of right lung; cavernous sounds in scapular region; dulness and loud bronchophony now also at and above left scapula. These signs have been increasing during the last twelve months, with more constant cough, copious opaque flocculent expectoration, pulse 100, and loss of flesh and strength.

A few months later the cavernous sound in the right lung became amphoric with signs of increase in the left also. In the Autumn of 1865 he went to Madeira, and died on the voyage back, early in 1866, about *sixteen years* after the first hæmoptysis.

From 1853 to 1863 the disease was so much arrested that he resumed active habits, and ceased to regard himself an invalid. The disease in consequence recommenced its activity, and ran its destructive course.

CASE 24.—A clergyman, aged thirty-nine, first consulted Dr. Williams on Dec. 30th, 1851. Fourteen months ago, after great vocal and other exertion, he had hæmoptysis to the amount of a pint, followed by cough, which continued through the winter, when he was at Glasgow taking oil and improving in condition. Went to Madeira in March, and nearly recovered, till six weeks ago, when cough returned, with expectoration, which was generally grey, and occasionally yellow. Physical signs: Some collapse in right front of the chest, especially between the second and third ribs, and protrusion on coughing. Whistling tubular sounds, and slight roughness of breathing over the same spot. Slight dulness and tubular sounds above the right scapula. Ordered oil in nitric and hydrocyanic acids, with tinctures of hop and orange, and a liniment of acetum cantharidis.

1862.—Lived in Maderia four or five years, taking oil steadily for one year. Is now well and active; and for the last four years has lived in England, and given regular courses of lectures at one of the universities.

April, 1868.—Continues well, and lecturing on elocution with great success during both term and vacation.

*Eighteen years and a half* have elapsed since his attack of hæmoptysis.

Case 25.—A captain in the merchant service, aged forty. First consulted Dr. Williams on the 5th of January, 1856. Two of his sisters and one brother had died of phthisis. Seventeen years ago, after violent cough, arising from cold, he had extensive hæmoptysis, amounting to two pints daily for a week, and less at intervals after. He was thus very much reduced in flesh and strength. He went to sea the following year, and in 1842 made repeated voyages on the Indian Ocean, and continued free from hæmoptysis and well till 1847, when he brought up a pint of blood, and again, in 1849, two or three pints. This again much reduced him, but he gradually recovered flesh and strength. At present (Jan. 5th, 1856) his breath is short, and he has morning cough, with yellow expectoration, but is not thin. Physical signs: Dulness and deficient breath over the whole left side of chest; tubular sounds and moist crepitation in the upper portion. Ordered oil, in a mixture of nitric and gallic acids, with an occasional aperient draught of sulphate of magnesia and sulphuric acid.

Dec. 5th, 1859.—Has generally been pretty well, but breath always short. A month ago some hæmoptysis, and two days ago to the amount of two ounces. Physical signs the same.

Jan. 7th, 1860.—Hæmoptysis to half a pint; otherwise well. Physical signs the same.

March 28th, 1867.—Was quite well for three years after last visit, and now looks in perfect health, and seldom ails. He has occasional cough and slight hæmoptysis, and his breath is short only on exertion. Physical signs: Dulness and obstructed breath in left front, with subcrepitus, which is also audible in the upper part of back.

Died suddenly in November, 1867, having lived *eleven and a half years* since his first visit, and *twenty-eight* since his first attack of hæmoptysis. This case is remarkable for the stationary character of the disease, considering its extent, and the little injury to the general health from so many attacks of extensive hæmoptysis. There can be little doubt that his life at sea kept up his health during the first part of his history; and temperate and regular habits, aided by the remedies used, contributed to the same result during the last twelve years.

Case 26.—A clergyman, aged forty-two, first consulted Dr. Williams on August 15th, 1850. Nine months ago, after over-exertion, he lost his voice for a time, and had cough, accompanied by some wasting and failure of strength, but continued to take three services every Sunday all the winter. After more exertion a month ago, for four days his morning expectoration was streaked with blood. Physical signs: Slight dulness; moist crepitation, with slight tubular sounds below left clavicle, more marked above; slight dulness and tubular voice in right interscapular region. Ordered oil, in a tonic of nitric and hydrocyanic acids, with the tinctures of hop and orange, and a liniment of acetum cantharidis.

Sept. 16th.—Much improved, under the oil, in flesh, strength, and breath, and able to walk fast and up-hill. Came from Hastings to-day, and after much talking, on lying down at night, expectorated blood to the amount of two ounces, with irritating cough. Is in too much tremor from fear to bear examination; pulse 90. Ordered gallic acid, with syrup of poppy, followed by an aperient draught of sulphate of magnesia and sulphuric acid.

21st.—No return of hæmorrhage; dulness with crepitus above left scapula.

30th.—Hæmoptysis to a pint and a half in last two days, and cough still troublesome. Ordered a blister and a morphia linctus, together with the gallic acid.

April 17th, 1851.—Has wintered at Hastings, taking oil regularly and gradually recovered from a state of great weakness; moderate cough and only slight expectoration. Has so much improved that now he can walk for five or six hours daily. Physical signs diminished.

May 4th, 1854.—Has taken oil regularly, and been quite well all the winter, without cough or expectoration; but has lately had neuralgia of the legs and occasional flushes of blood to the head; urine thick, with lithates; very little dulness or tubular sounds, but breath obscure above left scapula, and whiffy in left scapular region: tubular voice above right scapula. Ordered oil in nitric acid and tincture of orange, and an occasional effervescing saline.

Jan. 21st, 1858.—Has done duty well since. Only occasional cough, but always some mucous expectoration. Is strong and active, although of late has been much worried by a lawsuit. Signs diminished.

May 18th, 1860.—Active and well till a month ago, when cough returned, with opaque expectoration which has since improved. Still some dulness and tubular breath in both scapular regions, chiefly in left and in left front.

Sept. 26th, 1866.—Wonderfully well, and generally does duty. Cough and expectoration very slight. Weighs twelve stone—heavier than ever.

This patient was alive and well in March, 1868, more than *seventeen years* after his first visit, and more than eighteen since his first symptoms; and for the last ten years has done duty regularly.

Case 27.—A young gentleman aged fifteen was seen by Dr. Williams in consultation with Mr W. Jones on May 5th, 1853. Had suffered from cough for six months, and during the last month from pain in the left shoulder, and considerable loss of flesh and strength. Physical signs: Dulness, and crepitation, fine and coarse, in upper left chest. Ordered oil, acid tonic, and counter-irritation.

Nov. 28th.—Vastly improved, and has gained 14lb. Walks eight miles, and for the last three months has been shooting in the country. Physical signs: Dulness and tubular sounds in upper left chest as low as third rib. Ordered oil in sulphuric acid tonic.

May 17th, 1854.—Wintered well, with only slight cough and expectoration and short breath. Had been riding a good deal, and a week ago was caught in the rain, and rode home in wet clothes. Has since had pain in the left side, with night-sweats and diarrhœa. Physical signs: Increase of dulness and moist coarse crepitation in upper left chest. Ordered a blister, and mercurial and chalk powder, with effervescing saline; afterwards to return to oil, which had been discontinued for six months.

Aug. 9th.—Has been taking oil in the country, and is improved; but has cough and yellowish expectoration, occasionally tinged with blood. Physical signs: Liquid cavernulous sounds below left clavicle.

The patient continued better; but in September, after having been out shooting for five hours, was attacked with hæmoptysis to the amount of two pints. This recurred again and again, and he died in a week.

On examination after death there were found only a few miliary tubercles at the apex of the left lung, and a cavity of the size of a walnut, lined with a thick membrane, deficient at one point, where the hæmorrhage had come from. The rest of the lung was congested. The right lung was healthy. But for his imprudent exertion, this patient would probably have avoided this fatal hæmoptysis, and might have completely recovered.

Case 28.—A nobleman, aged forty-eight, of a gouty family, first consulted Dr. Williams July 18th, 1855. He had suffered from gout more or less for years, and in order to escape the attacks he had been to the West Indies, and two winters ago to Italy. In the following spring he passed blood by the bowels, and in the summer had hæmoptysis amounting to an ounce, which continued to a less degree in spite of cupping and leeching, but was stopped by gallic acid. Passed the last winter well, and free from cough in Egypt until chilled by a ride to Damascus; and in May, while at Paris, brought up an ounce and a half of blood. Cough returned and increased on reaching London in June. Physical signs: Slight dulness, slightly louder breath, with some tubular sound in upper left back. More tubular voice and obscure breath in upper right. Ordered oil in tonic of nitric and hydrocyanic acids, with tinctures of hop and orange, and counter-irritation.

Aug. 2nd.—Takes the oil well, and with benefit. Physical signs: Dulness and tubular sounds, mostly in upper back, with slight crepitation.

Oct. 5th.—Two months ago, after feeling much better and attending quarter sessions, had a cold; and a few days later slight hæmoptysis, and a sensation of weight at the sternum. Gallic acid and lead were given. On the 2nd and 3rd of October, without effort, he spouted up altogether two quarts of blood, and became very faint. Yesterday and to-day (Oct. 5th) he brought up only a few ounces. A draught of infusion of roses and sulphuric acid, containing half a grain of morphia, was given every four hours. Bowels not open for three days. Patient almost free from cough. Pulse 90. Physical signs: Breath clear and puerile in left front; much obstructed with obscure crepitation in right front. Two weak to bear examination in the back. Ordered an aperient draught of sulphate of magnesia and sulphuric acid, and a mixture of gallic and sulphuric acids, &c. The patient continued in an extremely weak state, with frequent pulse and respiration, hot skin, and low fever; expectorating bloody pus in increasing quantities. A few days later symptoms of pyæmia came on; tongue became dry and brown; pulse very rapid and running. Slight delirium ensued, and the patient died in a week.

### CONSUMPTION ORIGINATING IN INFLAMMATION.

Of the 500 cases of phthisis tabulated for these papers, 66 are described to have taken their origin in inflammation of the lungs or pleura, and 84 in a severe cold, which may be supposed to include some form or degree of bronchial inflammation. This makes a total of 150 in 500 (or 30 per cent.) in which the development of pulmonary consumption seems to have been determined by inflammation in some form. This statement does not invalidate the generally received opinion, that pulmonary consumption is of constitutional origin, and that a predisposition or dyscrasia is generally required to give to inflammation this peculiar result; but we think that in certain cases, without any predisposition or previous ill-health, inflammation of a peculiar kind, or modified by improper or neglected treatment, may lead to a degeneration in its products, and the formation of tubercle in some of its forms, and with its usual consumptive tendency. But this subject is too extensive to be entered on here.

We have before alluded to the modes in which the consolidation of the lung induced by pneumonia or pleuro-pneumonia may terminate in phthisis, either acute or chronic. We shall here advert only to the chronic results. The exudation material thrown out by the inflammation fills and obliterates more or less of the air-cells of the lung, and converts the tissue into a tough solid, impervious to air, and incapable of carrying on its proper function. This cacoplastic deposit, being usually of a contractile nature, tends in time to shrink further, so as to still more diminish the volume of the affected lung, and to prevent its taking part in the respiratory movements. All that these movements can do, to draw air into the lung thus obstructed, is to dilate the bronchial tubes that remain pervious; and this general dilatation of the bronchi is commonly found in connexion with this chronic consolidation of the lung. This appears to be identical with the affection described by Sir D. Corrigan as *cirrhosis of the lung*; and more recently by Dr. Andrew Clark as *fibroid phthisis*. Its inflammatory origin is generally to be traced both in the history of the case and in the fact that the undoubted products of inflammation are always found in conjunction with it in the pleura, which is firmly adherent to the lung by a tough fibrous material like that pervading the condensed lung.

But this change of structure is truly also a step towards phthisis; for it not only abridges the function of the lung as an organ, but it brings a part of its material into a lower state of organisation, and therefore more prone to decay; thus the whole system often sympathises with it, convalescence being imperfect, with a tendency to continued loss of flesh and strength. A person in this condition, under circumstances trying to the general health—ill-fed, ill-lodged, imperfectly clothed, confined in impure air, or exposed to cold, damp, or sudden change of atmosphere, and the like,—is pretty sure to go into consumption. The cacoplastic deposit in the affected lung undergoes further degeneration and softening, miliary tubercles form in the other lung, and the disease runs its course.

But if placed in *favorable circumstances*, such cases may very commonly be saved from this fate, and restored, if not to perfect health, yet to a state compatible with life and moderate activity and enjoyment for many years. The following cases are a few out of many that might be adduced to exemplify this statement. The first is given as an instance of inflammatory consolidation, with its concomitant dilated bronchial tubes, degenerating into phthisis. Then follow others in which this issue has been hitherto averted, and the patients restored to fair health. And lastly, there are mixed cases, in which the phthisical disease has proceeded even to the formation of cavities, and yet it has been subsequently arrested; but the cicatrisation of cavities and the contraction of the indurations around them have ended in a condition more allied to habitual asthma, comprising more or less pulmonary emphysema, which has a mechanical influence in restraining further solid deposits in the lungs.

Case 29.—A lady, aged thirty-five, was first seen Dec. 14th, 1841. Had three children and four miscarriages. Had suffered from phlegmasia dolens, mammary abscess, and other puerperal complaints. Twelve years ago had right pleurisy; and ever since breath has been short, with some cough. Suffered lately from pain and tightness of the chest. Occasional hæmoptysis to the amount of several ounces. Has been often bled for the tightness of the chest, and with much relief; but has lately become very pale and weak. Cough has increased, and is occasionally accompanied with profuse muco-purulent expectoration and night-sweats; aphonia; pulse 120. Physical signs: Dulness throughout right chest, especially in the lowest parts, where there is little motion. Tubular breath in middle, front and back. Cavernous sounds in lower back. Subcrepitus under left clavicle; breathing puerile below, throughout left chest. Heart beating under sternum. Liver enlarged. Ordered iodide of iron with tincture of hops, and aconite ointment for neuralgic pain.

March 8th, 1842.—In the country, and improved in breath and color, but lost flesh, and in last few days had pain and œdema of leg. Cough better, with expectoration more mucous and slightly tinged with blood. Physical signs: Breath and voice loudly amphoric in lower right back; obscurely vesicular above, but shortened. Right front very resonant, with loud cough, and tubular breath. Tubular sounds under left clavicle. Dyspnœa and weakness increased with extensive œdema in both legs up to the abdomen; and she died on the 11th of June.

On post-mortem examination, the left lung was found to contain scattered grey tubercles in the upper lobe, and a small cavity with broken-down walls, at apex, where the lung was adherent to the chest. The right lung was adherent on all sides except in front; adhesions being tough and firm, especially that connecting the lung to the diaphragm. The tissue of the lower lobe was solid, tough, and of a dark-grey color; the bronchi greatly dilated, even to their ends. In the posterior portion was a well-lined cavity, of the size of a large egg, containing purulent fluid, and communicating by three round openings with dilated bronchi; a smaller cavity at the base of this lobe. The middle lobe was very emphysematous and flaccid in front, but consolidated behind, and contained nodules of grey tubercle. In the upper lobe was a cavity of the size of an orange, with grey irregular walls, containing broken-down tubercle. The rest of the lung was in a state of grey consolidation, which in some parts had become yellow and softened. The large bronchi were very red.

In this case the contractile consolidation of the lung, resulting from inflammation twelve years before, eventually went into tuberculous degeneration. This case occurred before the use of cod-liver oil was well known, and may be contrasted with the following examples.

Case 30.—A gentleman, aged forty-three, was seen by Dr. Williams for the first time on May 1st, 1855. Had been closely confined to business, but pretty well till February, 1855, when he was chilled, and a few days afterwards attacked with cough, shortness of breath, and then with severe pain in the loins and lower chest, and inability to lie on the left side. Expectoration has nearly ceased, but cough continues; breath is very short, and he looks miserably thin and pale, yet he is engaged to be married very shortly. The urine contains much brown sediment. Physical signs: Left side generally contracted, hard, and dull; no breath-sounds audible in lower regions, but some below the clavicle; large tubular sounds and strong vocal vibration in middle regions; heart drawn up above fifth rib to the left. Has been taking citrate of iron and quinine. Ordered oil, in a tonic of nitric and hydrocyanic acids, with tinctures of hop and orange. An effervescing saline to be taken at night, and tincture of iodine to be applied to the chest.

July 7th.—Has been taken oil three times a day with acid and quinine, and is much improved in flesh and strength. Is free from cough, and expectorates but little; but still has pain in the left side. Physical signs slightly better, but still great contraction and dulness of this side. Ordered to take oil, with iodide of potassium, and to continue counter-irritation.

Dec. 29th.—Was married in the middle of July, and has continued to improve, taking oil regularly and gaining much in flesh, strength, and breath. Has had slight cough during the last ten days. Physical signs about the same.

May 26th, 1856.—Had cold and cough for some weeks in the winter, and expectoration has continued since. Flesh and strength good, and breath better, though still short. Physical signs: Still dulness and collapse in left side of chest; but more vesicular breath in upper portion.

Oct. 23rd, 1862.—Has been quite well, and has three children. Had lost cough, but breath remains short on exertion. Lately, at Scarborough, got chilled, and cough has returned, with yellow expectoration, and furred tongue. Physical signs: Still defective motion and breath in left chest; obscure in back and side; tubular voice at and above the scapula. Heart adherent to chest; impulse strong, less from hypertrophy than from the closer contact even of the left ventricle with the chest wall.

This patient has not been since heard of, but is supposed to be living, although there was still the danger of the cacoplastic deposit in the left lung further degenerating, and passing into the phthisical course.

Case 31.—Mr.——, aged thirty-nine. Grandmother died of phthisis.

September 19th, 1856.—Two months ago, after much exertion, he had a fever which was called gastric, but it was accompanied with cough and expectoration, once bloody, and the cough has continued with opaque sputa; and although he has regained some strength, he has not recovered flesh, and sweats much at night. Physical signs: Defective motion, and extensive hard dulness over the whole right—most in upper parts, where there are large loud tubular sounds, and strong vocal vibration. Some crepitus in the lower parts, but no vesicular breath-sound. He had been taking cod-liver oil, a dessert-spoonful twice a day; to be increased to a tablespoonful, and taken in infusion of orangepeel with sulphuric acid.

October 13th.—Cough less, and improved in strength. He passed the next winter at Rome, with little improvement, the emaciation, cough and expectoration continuing, and the state of the lung much the same—extensive consolidation, but no decided softening or excavation. The winter 1857–8 was spent at Nice, and during this year a gradual improvement took place in flesh; the patient gained nine pounds, and the cough and expectoration ceased. Physical signs: Still much dulness, and tubular sounds in right back and front, but more motion and breath.

October 4th, 1859.—Last winter in Rome, with more strength and activity. Is much less thin. Has been lately at Spa, and suffered from rheumatism of the back and sweats. Physical signs: Motion and sound on percussion much improved in right chest, but there are still some dulness and large tubular sounds at and above right scapula. To take mixture of iodide of potassium and quinine, with nitric acid.

December 6th, 1860.—Has been generally well except occasional pain in right chest, and perspiration on exertion. Physical signs: Movement and stroke sound of the right side still not equal to those of the left, and some tubular sounds remain in the scapula region; but there is good vesicular breath-sound elsewhere.

1866.—Quite well in health. Still some tubular sound and dulness in upper right.

1868.—Continues well.

*(To be continued.)*

# ON IMPROVED METHODS OF EXTRACTION OF CATARACT.

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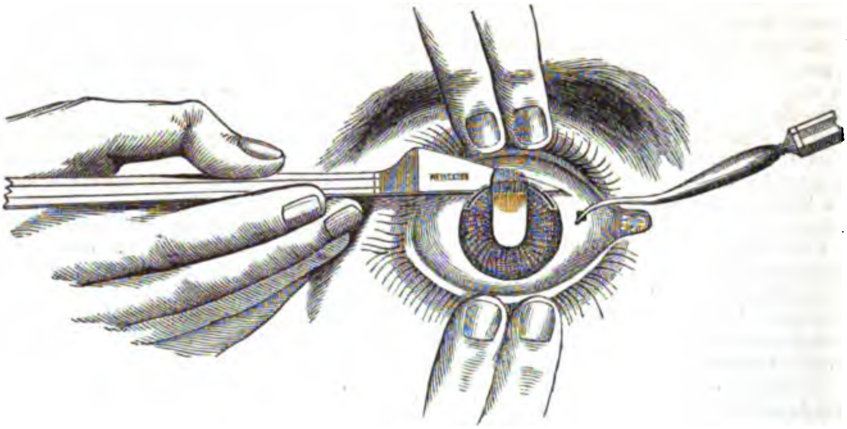
## No. V.

*The Author's method.*—Since the autumn of 1864 I have practised an operation which, I think, combines the advantages of all recent improvements without their risks. My object is, to remove the cataract through an incision sufficiently large to give free exit to the entire lens, of whatever size and consistency, without bruising the internal parts or the corneal wound, and without incurring the loss of vitreous; and at the same time to ensure rapid union, so as to make it applicable to all possible local or constitutional complications. Easy exit of the entire lens, and sparing the vitreous, I consider to be the essential elements of perfect extraction—perfect both in its immediate and in its prospective results.

I perform iridectomy and extraction at the same sitting, under chloroform, only in traumatic cataract with dislocated lens; but, as a rule, I make iridectomy six weeks prior to extraction. I rather avoid doing both operations at the same time, because in some cases iridectomy cannot be satisfactorily performed with a large opening: the corners of the section in the iris are apt to be invaginated in the corneal wound, thus giving rise to a larger pupil than the operator intended. Such a pupil interferes subsequently with distinctness of vision,—because the fresh wound of the iris may be irritated by the débris of the lens; because the blood from the iris may conceal the lens from view, and so render its removal a sort of groping in the dark; and, finally, because when there is a glaucomatous tendency, or softening of the vitreous, the simultaneous performance of the two operations may cause internal hæmorrhage or collapse of the eye. As a rule, then, the eye can more easily bear the operation when thus divided into two periods, and the different stages of the operation can be performed with more regularity and precision. In old people I perform iridectomy and the subsequent flap downwards, and find the optical effects perfectly satisfactory; and in middle aged persons, where regard must be had to appearances, I make them upwards. In either case I perform iridectomy exactly in the vertical meridian of the eye, so that the coloboma iridis shall correspond with the centre of the subsequent corneal section. The extraction is done as follows:—The patient being in a recumbent position upon a high couch, and the eyelids being held aside by an assistant, I stand behind the patient, operating with the right hand on the right eye and with the left hand on the left eye. Fig. 8 shows the right eye operated on by a superior flap thus:—1. With the right hand I fix the globe by means of the pique de Pamand, which I consider the most suitable instrument: with the narrow Beer's knife in my right I enter the external margin of the cornea close to its sclerotic junction, perpendicular to the surface, as if wishing to reach the iris, in order to prevent the knife running between the layers of the cornea, and also in a downward direction, after Graefe's example, in order to enlarge the internal opening. After the point is seen in the anterior chamber, I carry the handle backwards and pass to the counter-puncture, which is made directly opposite on the inner side. The points of puncture and counter-puncture are so made that the corneal flap extends to a line more than one-third of its circumference. The knife is then pushed on in a plane parallel to the iris, until the corneal section is nearly completed, when its edge is inclined a little backwards, so as to carry it under the conjunctiva, and it is then withdrawn, leaving a conjunctival bridge in the centre. 2. At this stage

FIG. 8.



I take entire charge of the eye, as shown in Fig. 9. My two fingers of the left hand serving the purpose of a speculum, I order the patient to look down, and introduce one blade of the probe-pointed scissors in the track of the knife, and, carrying it to the conjunctival flap, divide it. When operating on the left eye I must here change my position, as the scissors cannot conveniently be used with the left hand, and it is not advisable to divide the conjuntiva with the knife, as it is apt to peel off. 3. The capsule is then largely opened with the cystotome. To facilitate this process, gentle pressure with my fingers upon the ball is necessary to make the capsule tense. 4. After a few seconds of rest, I seize a fold of the upper eyelid between my fingers (Fig. 10), and the lower I depress with the other thumb, and, directing the patient to look down, I exercise pressure on the lower part, exactly in the vertical meridian facing the middle of the coloboma iridis, and with the other fingers through the eyelid I press upon the wound to make it gape, when the cataract advances through the corneal and conjunctival flap. Due attention must be paid to this direction: pressure must be made at the point just indicated, otherwise the lens is pushed sideways, and may rupture the hyaloid or damage the ciliary processes. This is, indeed, the most critical stage of the operation, for the surgeon must have his art literally at his fingers' ends. If inordinate pressure is used, the vitreous may come out and the lens fall backwards. The pressure must be steady and graduated, and with due co-operation of both hands. If the cataract be found adherent (which can be easily diagnosed beforehand), I introduce the hook in the same manner as I introduce the cystotome, first in a horizontal direction; with it I lacerate again the anterior capsule, to make sure that there is no impediment from that source; then I slip it flatly behind the lens, turn the point forwards and draw the lens out. If cortical fragments remain behind, the ordinary friction and sliding manœuvre, as adopted in Graefe's operation, is used to extrude them; should this fail, a small curette is used.

FIG. 9.

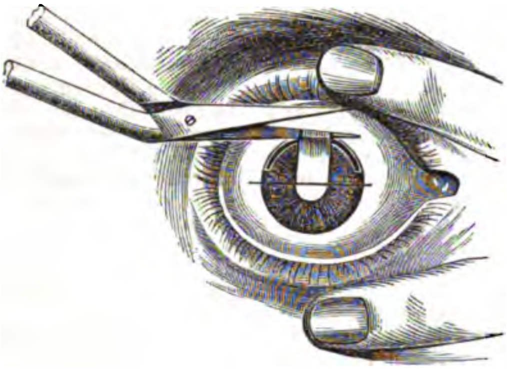
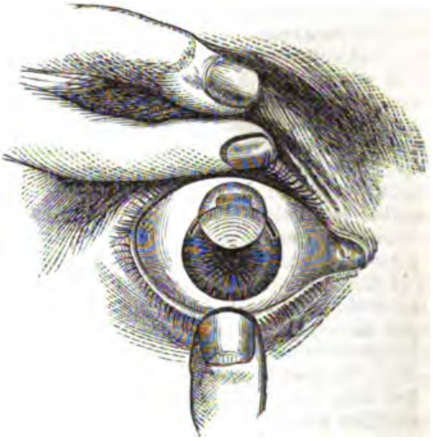


FIG. 10.



A glance at Fig. 9 will show the advantages of this method. 1. Previous iridectomy prevents many risks during and subsequent to the operation, as already pointed out. 2. No contracted pupil preventing its exit, the lens can be extracted by a smaller incision than one-half of the circumference, as shown by the equatorial line in the same figure; indeed, a section of this extent has no tendency to gape, as can be readily proved by section on the dead body, and by the liberty which I can take with the eye immediately after the operation. 3. The exposed meridian of the lens, represented by the black shading at the margin, shows that we are able to look through the suspensory ligament and clear of the margin of the lens, which enables us to introduce with exactness a small hook behind it, if necessary, thus avoiding the risk from inordinate pressure. I may add, however, that, with my section, I have only eight times had occasion to resort to the hook or curette. In short, we avoid to a great extent the whole string of accidents which may happen at each stage of the ordinary flap operation. The additional security is in the conjunctival flap, which heals in a few hours, and secures against bursting of the wound from muscular exertion, &c.; it is also a guarantee againt suppuration of the cornea, and thus renders the operation available in feeble and cachetic patients, in whom such an accident is to be apprehended.

I must here remark, that while I think the conjuctival flap, originally introduced by Desmarres in 1849, to be a great advantage in cachectic cases, and in others where rapid union is of importance, I do not consider it an essential part of the operation; in some cases, indeed, it is rather to be avoided, as for instance, in pterygion, where it might give rise to excessive hæmorrhage, or in old people with a loose unhealthy conjuctiva, and in those cases where, after iridectomy, there has been found a tendency to serous chemosis. When the conjunctival flap is not to be made, the first stage of the operation is finished by turning the edge of the knife slightly forwards, so as to round off the corneal flap.

I administer chloroform only in cases of traumatic cataract, when the eye is tender to the touch, or in cases where special circumstances render it absolutely unavoidable: thus I have administered it in a case of an imbecile whose steadiness I could not trust to, and in some cases where the patients refused to submit to the operation except under chloroform, all of which cases proved perfectly successful. My objection to chloroform as a rule is because it embarrasses me in the fourth stage. With the *vis expellens* of the ocular muscles I can so graduate my pressure as to extrude the lens with ease; but when these muscles are flaccid, I am at a loss as to the amount of pressure requisite. It also deprives me of the opportunity of testing the result at once, which is always desirable. Moreover, in some cases of softened vitreous and of thinning of the cornea, strong pressure upon a flaccid eye may cause collapse. Perhaps those who are in the habit of extracting under chloroform may give a more favorable verdict. Dressing consists in two strips of court plaster, wadding, and Liebriech's bandage. I never used leeches, and only very rarely have I had to paint belladonna round the eyelids. I take the same precaution with regard to perfect quiescence, avoidance of mastication, &c., as after the ordinary flap extraction. At the second visit—i.e. forty-eight hours after the operation, I remove the dressings, examine the wound, and allow the patient to be out of bed. In several cases I had to open the eyes twenty-four or thirty hours after extraction and found union complete.

The cases to which I have already alluded, as leading to the adoption of this method, occurred in 1864, when the spoon operation was still in vogue, and may be briefly detailed thus:

1. *Double cataract, with dropsy of the anterior chamber, and the largest cornea pellucida on record; vision restored.*—W.B——, aged fifty-nine, weaver. Always remarkable for exaggerated shining goggle eyes, but vision perfect until three years ago, when cataract began; both corneæ highly transparent, glittering, hemispherical, measuring seven-eighths of an inch in diameter, with a diffused bluish haze in the centre, where they seemed thinned; sclerotic also thinned; iris slate-colored, slightly depressed; pupil irregular in outline, sluggish. Right eye, which was considered the best, had been operated on by Waldau's method; wound healed well, but the cornea collapsed and became opaque.

Nov. 23rd.—Iridectomy performed on the left eye, which was followed by sinking of the cornea, which lasted for a few hours, but rose again under hot fomentations. Six weeks subsequently extraction was performed, lens being removed by a hook; wound healed without a bad symptom. Sees large type without glasses, and is now employed as a porter; is not benefitted by spectacles.

2. *Traumatic cataract, with closed pupil; cured.*—J. S——, aged twenty-four, engineer. Four years ago left eye injured by a piece of steel; sight instantly abolished. Inflammation lasted three weeks. Iris discolored, adherent to capsule; lymph filling pupil and part of anterior chamber. Was for some time under the treatment of a celebrated oculist, who declared the eye as incurable. Patient consulted me for muscæ volitantes in the other eye. Iridectomy and subsequent extraction by my method. Was out the third day after extraction. Reads No. 16 of Jaeger with 2 convex.

3. *Traumatic cataract, with hypopion and posterior adhesions; cured.*—A. D——, aged sixty-three, mason. Left eye struck with a piece of granite, resulting in inflammation and hypopion. After three months' treatment, iridectomy and subsequent extraction by my method. Reads No. 12 with 2¼ convex.

4. *Double cataract, with undilatable pupil, in an epileptic; cured.*—Mrs. B——, aged sixty-five. Subject for some years to epileptic fits, coming on irregularly. Operation by my method. Had a fit the day after extraction, which, however, did not interfere with perfect recovery. Reads No. 10 four weeks after extraction.

These cases (which I exhibited at the time to the Aberdeen Medico-Chirurgical Society) having proved so satisfactory, induced me to give the plan an extended trial, with the results of the loss of only 4 out of 107 cases, as shown in the following table:—

| | Hospital cases. | Private cases. | Total. |
|---|---|---|---|
| Senile | 57 | 32 | 89 |
| Traumatic | 12 | 3 | 15 |
| Glaucomatous | 3 | 0 | 3 |
| | 72 | 35 | 107 |

*Results.*

| | Senile. | Traumatic. | Glaucomatous. | Total. |
|---|---|---|---|---|
| Healed well, with perfect vision | 81 | 12 | 1 | 94 |
| Healed well, but no vision | 2 | 3 | 2 | 7 |
| Healed well, required subsequent operat'n | 2 | 0 | 0 | 2 |
| Lost by internal hæmorrhage | 1 | 0 | 0 | 1 |
| Lost by suppuration | 2 | 0 | 0 | 2 |
| Lost by iritis | 1 | 0 | 0 | 1 |
| | 89 | 15 | 3 | 107 |

*Remarks.*—1. When these papers were begun, the number of cases in which I had practised the operation was 96; since then I have had 11 more —4 traumatic and 7 senile, all resulting in immediate success.

2. The case lost by internal hæmorrhage was a lady, aged eighty-two, for many years subject to rheumatism. The hæmorrhage was profuse, lasting for two hours, the result probably of a diseased condition of the choroidal vessels.

3. One of the cases of suppuration, which came on the next day after the operation of iridectomy and extraction done simultaneously, was that of a pauper woman of premature senility, with all the joints distorted by rheumatism; small sunken eyes, with granular lids, and blephero-adenitis—a case, in short, in which I operated against my judgment, circumstances having in a measure, compelled me to attempt it. This will serve to show that many cases have been operated on by the old operation.

The only objection that can fairly be made to this method—namely, that it makes two operations instead of one—may be met by the fact that Graefe's operation, in the hands of Professor Arlt, has required subsequent operation in 10 per cent. Of these secondary operations, according to Wecker, only 50 per cent. recover sight; if, therefore, two operations are to be performed, it is infinitely preferable that the secondary one should precede, and not follow, the extraction. Besides which, it is frequently of essential importance to become acquainted with the habit of the patient's system, which we do during the previous iridectomy. As an example of this I may cite an instance of tobacco delirium which nearly produced serious results:—

In February, 1862, Miss E. C——, aged sixty-eight, was brought to me affected with double cataract. I extracted the cataracts from both eyes by the ordinary superior flap at the same sitting, assisted by her medical attendant, Dr. B——, of M——. All went on well for the first thirty hours after the operation, when we were suddenly summoned, as the patient was delirious, and fighting with the nurse to get of bed. On our arrival we found her half out of bed and talking incoherently. On inquiry, we learned that she was a confirmed smoker, and that since the operation the nurse had refused to allow her accustomed smoke. A full opiate quieted the symptoms at the time, and the allowance of her pipe prevented a return. She recovered without any other bad symptom, with excellent vision of both eyes.

Notwithstanding my conviction of the advantages of my operation, I have not altogether abandoned the old flap extraction, but still perform it in a few exceptional cases, such as the following:—

A venerable city clergyman, aged eighty-one, cataractous, was affected with such extreme tenderness of the skin that a slight scratch, or even rough friction with a cravat, produced erysipelas. A drop of a solution of atropine on the eye caused serous chemosis and œdema of the eyelid, lasting for a considerable time; and the least touch on the eye made him shrink, producing spasm of the orbicularis. In this case it was evident that, if the cataract was to be removed, it must be done quickly through the cornea. Accordingly, I extracted by Daviel's method, which proved highly successful.

A lady, about seventy years of age, was brought to me from the country. I wished to operate by my own method; but her medical adviser, Dr. Kilgour, represented that her mind was so made up to have her operation finished within a few days that the delay would be unendurable, and, in the then condition of her nervous system, unadvisable. I therefore operated by the ordinary flap. Six hours after the operation a fit of retching and vomiting occurred, caused probably by nervous excitement, notwithstanding which she made an excellent recovery, with perfect vision.

But considering the great anxiety which these cases cause, the care which they require, and the uncertainty which they involve, even after the best executed work, I am more than ever determined to reserve it for very exceptional cases, and, as a rule, to adhere to the operation which I proposed.

In conclusion, the advantages of the procedure which I now advocate may be summed up as follows:—1. It is the safest; all the different stages of the operation may be gone through with precision, safety, and almost certainty of success. 2. The chances of success being so high, we need not put off the operation until blindness of both eyes is complete, but may perform it as soon as one eye is blind and the other becoming so. 3. It does not require long confinement, and does not distress the patient. 4. It is applicable to cases of local and constitutional complications in which Daviel's operation is inadmissible.

# ON SOME RESULTS OF A RETROGRADE ENGORGEMENT OF THE BLOOD-VESSEL.

By Geo. Johnson, M.D., F.R.C.P.,

**Professor of Medicine in King's College, Physician to King's College Hospital.**

My objection in the present communication is to direct attention to certain results of a retrograde engorgement of the bloodvessels, consequent upon an impediment to the onward movement of the blood. Most of the facts to which I am about to refer are well-known and familar facts; I believe, however, that they have not hitherto been collated and analysed with the care and the accuracy which their pathological interest and their practical importance demand.

I have to speak first of certain phenomena which result from an impeded circulation through the *lungs*. I shall afterwards refer briefly to some analogous phenomena which follow an interrupted circulation through the *liver* and through the *kidney* respectively.

Let me first, then, direct attention to the well-known peculiarities of the blood-supply to the lungs. The lung, as a respiratory organ, as a great gas-secreting gland, is supplied by the pulmonary artery, the blood from which passes through the pulmonary capillaries and veins from the right to the left side of the heart. The lung, as an organ whose tissues have to be nourished, is supplied with blood from the aorta by the bronchial arteries, and this blood, having been distributed to all the proper tissues of the lung, is returned by the bronchial veins (one opening into the left superior intercostal, and the other into the vena azygos) into the superior cava. In the lung, therefore, there is the pulmonary circulation proper, and, in addition to this, there is the bronchial circulation, by means of which its own tissues are nourished, this bronchial circulation constituting a part of the general systemic circulation. "The bronchial arteries and veins carry blood for the nutrition of the lung, and are doubtless also the principal source of the mucous secretion found in the interior of the air-tubes." (Quain's Anatomy, edited by Dr. Sharpey, 7th edition, p. 903). It is generally believed, and it probably is a fact, that where these two different sets of vessels come into contact, where the bronchi and intercellular passages merge into air-cells, there is a communication between the two sets of vessels—between the pulmonary and the bronchial systems of vessels.

I have elsewhere sufficiently proved that during the collapse stage of cholera there exists a great impediment in the minute branches of the pulmonary artery. The result is that those parts of the vascular system which lie in front of the smallest branches of the pulmonary artery are comparatively empty of blood, while the parts behind are distended. The whole of the systemic venous system is gorged with blood; hence the lividity of the face, and hence congestion of the bronchial veins and capillaries, which may impart to the lung a dark color and an appearance of congestion, while yet the lung, as a whole, contains very little blood, and is much reduced in weight. Even the *pulmonary* capillaries may become partially injected in consequence of an impeded return of blood through the bronchial veins. There is a communication between the two sets of vessels about the terminal bronchi, and a part of the blood carried by the bronchial arteries is returned by the pulmonary veins. An impeded return by the bronchial veins would therefore divert more bronchial blood into the pulmonary capillaries and veins.

Some pathologists have supposed that the impeded transit of blood through the lungs in the collapse stage of cholera is a result of its becoming too thick and viscid to pass through the capillaries.[*] This view is proved erroneous by a number of facts, and amongst others by the anatomical fact that the mass of blood is arrested *before* it reaches the pulmonary capillaries, while the blood is obviously not too thick to enter the bronchial capillaries, which, although of a smaller size than the pulmonary capillaries, are as overfull as the pulmonary capillaries are empty of blood. In fact, there is usually a direct relation between the anæmia of the pulmonary capillaries and the engorgement of the bronchial; and the contraction of the minute pulmonary arteries, presenting an abrupt bar to the onward movement of the blood, is the probable cause of both phenomena. One result of the engorgement of the bronchial veins and capillaries during the collapse stage of cholera is a tendency to passive serous transudation through the mucous membrane into the bronchial tubes. The consequence is that after prolonged collapse the minute bronchi and air-cells become more or less filled with serum; and when during reaction the blood again passes freely through the pulmonary artery, the respiratory changes are interfered with by the œdematous condition of the lung, and there often occurs a fatal apnœa.

Now let us compare the phenomena of cholera collapse with those of spasmodic asthma. The general appearance of a patient during a severe paroxysm of asthma is strikingly like that of one in the collapse of cholera. Dr. Hyde Salter, in his masterly treatise on Asthma, says (p. 71): "If the bronchial spasm is protracted and intense, the heat of the body falls; the oxygenation of the blood is so imperfectly performed, from the sparing supply of air, that it is inadequate to the maintenance of the normal temperature; the extremities especially get cold and blue and shrunk; I have known the whole body deathly cold, and resist all efforts to warm it for four hours. But while the temperature is thus depressed, the perspiration produced by the violent respiratory efforts may be profuse, so that the sufferer is at the same time cold and sweating. It is this union of coldness and sweat, combined with the duskiness and pallor of the skin, that gives to the asthmatic so much the appearance of a dying man. The pulse during severe asthma is always small, and small in proportion to the intensity of the dyspnœa; it is so feeble sometimes that it can hardly be felt."

The resemblance between some of the most striking features of the asthmatic paroxysm and the collapse of cholera is obvious. What, then, is common to these two forms of collapse? Obviously not a drain of liquid from the blood, which was so long and so erroneously supposed to be the main cause of cholera collapse, but a partial arrest of the pulmonary circulation. In a paper which is to appear in the next volume of the "Medico-Chirurgical Transactions," I have shown that in cases of acute apnœa there is the same evidence of an arrest of blood in the minute branches of the pulmonary artery as exists in the case of cholera collapse. In both pathological conditions the pulmonary capillaries contain very little blood, while the right cavities of the heart and the pulmonary artery are distended, the left cavities of the heart being comparatively empty. In both asthma and cholera the circulation is impeded by the muscular contraction of the small pulmonary arteries; and hence the symptoms of collapse in both diseases. In cholera the contraction of the arteries is a result of the poisoned blood in the vessel; in asthma it is a consequence of the partial apnœa occasioned by spasm of the bronchi. In cholera there is a primary asphyxia and a secondary apnœa,[*] consequent upon the blood-stasis; in asthma there is a primary apnœa, the result of bronchial spasm, and a secondary asphyxia. In both forms of disease the symptoms of collapse may speedily be removed for the time by measures which overcome the primary spasm: in asthma by the inhalation of chloroform, which relaxes the bronchial spasm; in cholera by the injection of a hot liquid into the veins, which, reaching the lungs, overcomes the arterial spasm. In asthmatic apnœa we have evidence of congestion of the bronchial system of vessels in the occasional occurrence of bronchial hæmoptysis, and in the more constant occurrence of bronchial mucous expectoration, which is copious and prolonged in proportion to the intensity and duration of the previous paroxysm.

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[*] The dark color and the viscidity of the blood in cholera are the results and not the cause of the impeded circulation. This condition of blood is common to all forms of apnœa and consequent blood-stasis. Unaërated, stagnating blood is always thick, and has a tendency to coagulate. In croup, for instance, the immediate cause of death may be an actual clot in the pulmonary artery, the result of apnœal blood-stasis.

[*] I use the terms "asphyxia" and "apnœa" in their strictly literal sense of *pulselessness* and *breathlessness*.

I have dwelt at some length upon the phenomena of asthma as a type of partial acute apnœa. The causes of acute apnœa are very various; but in all essentials the phenomena are alike. Whether the apnœa be the result of hanging, drowning, suffocation, inflammatory croup, diphtheria, epileptic or tetanic spasm implicating the respiratory muscles, division of the vagi nerves as in Dr. John Reid's experiments, apoplectic coma, narcotic poisoning or injury to the upper part of the spinal cord,—in each and all of these cases, in proportion to the suddenness and completeness of the apnœa, the pulmonary capillaries are anæmic, while the vessels containing black blood which lead up to those capillaries, are gorged. In all these cases, too, the retrograde passive engorgement of the bronchial veins and capillaries results in a serous and mucous, and sometimes sanguineous, exudation into the bronchial tubes.

We are now in a position to understand the condition of the lungs which is found in cases of *chronic* apnœa. In acute apnœa we have seen that the lungs are anæmic, and we have explained this by the stop-cock action of the minute pulmonary arteries consequent upon the suspension of the respiratory changes. When death occurs after a state of partial apnœa has continued for many hours, or for several days, the lungs are always found more or less gorged with blood and serum. The explanation of this is simple. The apnœal blood-stasis in the pulmonary artery throws back the blood upon the bronchial veins and capillaries, from which there is poured a serous dropsical exudation into the bronchial tubes. This fluid, sometimes blood-tinged, reaches the extremities of the bronchial tubes and the air-cells, where it compresses the network of pulmonary capillaries, and impedes the flow of blood through them. Thus the lung becomes more and more gorged with blood and serum. An analogous phenomenon may often be witnessed in anasarcous legs. The accumulation of liquid in the areolar tissue sometimes compresses the vessels so as to cause passive congestion, and not unfrequently inflammation and gangrene, of the skin and tissues beneath the skin.

A case of tricuspid regurgitation, which occurred under my care in the hospital twelve years ago, affords an instructive illustration of the effect of an impediment originating in the right side of the heart, first upon the bronchial, and secondly upon the pulmonary, circulation, I gave the particulars of this case in a clinical lecture which was published in the *Medical Times and Gazette* of February 13th, 1858. A woman, aged fifty-two, was admitted with general dropsy, albuminuria, a systolic bellows-sound at the bottom of the sternum, distended and pulsating jugulars, and the physical signs of bronchitis. A single large dose of elaterium acting very freely upon the bowels cleared away the dropsy, the albuminuria, and the bronchial secretion. After a short time, however, *all* the symptoms returned, and she died. We found, as we had expected, great dilatation of the tricuspid orifice, while the valves on the left side of the heart were normal. The lungs were much engorged. In this case it is clear that the primary cause of all the suffering was incompetence of the tricuspid valve. There was, consequently, a reflux of blood into the systemic veins; renal congestion and albuminuria, anasarca, bronchial congestion and exudation, and then a secondary obstruction of the pulmonary capillaries. It is interesting to note that before her admission she had spat some blood, the source of which was in all probability the over-gorged bronchial capillaries. We are familiar enough with the occurrence of hæmoptysis as a consequence of mitral or aortic valve disease; the source of such hæmoptysis being the pulmonary capillaries, while disease on the right side of the heart throws back the strain and pressure primarily upon the bronchial vessels. If there were no bronchial vessels, if the sole blood-supply to the lungs were through the pulmonary artery, the tendency of obstruction at the right side of the heart would obviously be to render the lungs anæmic, and not to overfill them with blood.

Another interesting phenomenon, allied to those to which I have already referred, is the œdema of the sound lung, which not unfrequently occurs when one lung has been suddenly consolidated by pneumonia, or compressed by a pleuritic effusion. In such a case we sometimes hear crepitating sounds in the bronchi of the healthy lung; and we look upon this condition of things with anxiety, because we know that an increase of the œdematous effusion into the bronchi may cause fatal apnœa. Until quite recently I have always considered that the pulmonary capillaries were the source of the serous exudation in these cases. I have now no doubt that it is from the bronchial capillaries mainly that the liquid escapes. In consequence of the impervious condition of the lung on the diseased side there is a state of partial apnœa; more blood is sent to the sound lung than can readily be aërated; its progress is checked and regulated by the stopcock action of the minute pulmonary arteries; there is more or less engorgement of the right cavities of the heart and the systemic veins; and with this there is bronchial congestion, and a consequent serous exudation into the bronchi.

Once more, it is notorious that patients who have general vesicular emphysema of the lungs are very liable to bronchial catarrh. Why is this? In an emphysematous lung there is dilatation of air-cells, rupture of their walls, and obliteration of capillaries. The vascular network of the lungs is much diminished; there is consequently an impeded pulmonary circulation, fulness of the right side of the heart and systemic veins, bronchial capillary congestion, and so a liability to catarrh and bronchitis. This passive congestion of the bronchial mucous membrane predisposes to catarrh and bronchitis, just as varicose veins in the leg predispose to inflammation of the integuments. Another result of the passive congestion of the bronchial capillaries which is a consequence of emphysema, is the occasional occurrence of bronchial hæmoptysis. Of this I have seen a considerable number of instances, and not a few in which the occurrence of blood-spitting has led to an erroneous diagnosis of tubercular disease of the lung.

The *liver* resembles the lung in this respect, that, as an excretory organ it is supplied with venous blood. Like the lung, too, it receives a separate supply of arterial blood, through the hepatic artery, for the nutrition of its own tissues. It differs from the lung in this important particular, that the blood retains its black and venous character as it emerges from the liver. There is therefore no need for a companion vein to the hepatic artery corresponding with the bronchial veins; but the blood from the hepatic artery, after supplying the liver tissues, mingles with the portal blood, and so passes on into the vena cava. In cases of cirrhosis of the liver there is an impeded circulation through the gland: the whole of the portal venous system is consequently engorged; the hæmorrhoidal veins are often enlarged; there is sometimes hæmorrhage from the mucous membrane of the alimentary canal, and still more frequently a serous dropsical effusion into the cavity of the peritoneum.

The *kidney* differs from both the lung and the liver in this respect, that it has but one source of blood-supply. The blood of the renal artery serves at once to nourish the gland and to supply the materials for its secretion. With respect, however, to the distribution of blood within its substance, the kidney presents some points of analogy with the lung on the one hand, and with the liver on the other. It resembles the lung in the fact that it has two sets of capillary vessels—the Malpighian capillaries and the intertubular capillaries; but it differs from the lung in the fact that the same blood passes in succession through both sets of capillaries. Then there are some points of analogy between the capillary arrangement within the kidney and that within the liver. Mr. Bowman, in his original paper "On the Structure of the Malpighian Bodies of the Kidney," pointed out that each efferent vein may be looked upon as a portal vein in miniature, the resemblance between the portal and the efferent vein consisting in the fact that each vein intervenes between two sets of capillary vessels. And thus we find that as an impediment to the circulation through the liver causes a serous exudation into the cavity of the peritoneum from the capillary vessels in which the portal vein takes its rise, so an impeded circulation through the kidney causes a serous exudation from the capillary vessels in which these miniature portal veins—the efferent veins—originate, and this serous exudation from the Malpighian capillaries passes into the uriniferous tubes. Dr. George Robinson, Frerichs, and others have shown that a ligature on the renal vein of a rabbit causes a retrograde engorgement of the Malpighian capillaries, and a consequent escape of blood constituents into the uriniferous tubes, which, mingling with the urine, render it albuminous. In cases of Bright's disease there is an impeded circulation through the intertubular capillaries, which is, in part at least, occasioned by the pressure of the swollen tubes upon the vessels which lie between them; there is, consequently, an engorgement of the Malpighian capillaries, a serous exudation into the uriniferous tubes, and thus an albuminous condition of the urine.

We see, then, that while an impeded circulation through the lungs throws back the blood upon the bronchial veins and capillaries, and causes a serous, mucous, or sanguineous exudation into the bronchial tubes an impeded circulation through the liver distends the portal veins and capillaries, and causes hæmorrhage from the mucous membrane of the alimentary canal, or serous effusion into the cavity of the peritoneum; and, lastly, an impeded circulation through the kidney distends the Malpighian capillaries, and causes a serous exudation, and sometimes hæmorrhage, into the uriniferous tubes. The results in each case are readily explained by a reference to the peculiarities of the circulation in each of these important organs—the lung, the liver, and the kidney. Without such a reference the facts are utterly unintelligible.

If there be anyone who doubts whether the retrograde action of a block to the circulation can be so far-reaching as I have described it to be, he has only to be reminded of the undoubted fact that an obstructive valvular disease on the left side of the heart may affect the most remote parts of the circulatory system. Thus the impediment resulting from a defective mitral valve may extend backwards through the pulmonary capillaries to the systemic veins and capillaries, causing anasarca of the feet, &c.; it may extend through the capillaries within the liver to the portal vein and its capillary origin, causing ascites; and through the intertubular renal capillaries, to the Malpighian capillaries, causing albuminuria. It is manifest that neither extreme distance from the seat of obstruction, nor the intervention of two successive sets of capillaries, will prevent that retrograde passive engorgement of vessels which results from a block in the course of the circulating current.

In a future communication I shall endeavor to show that a careful study of the hydraulics of the circulation will lead us to the establishment of some simple, yet most useful, guiding principles for the employment of bloodletting, general and local, and for the use of hot and cold applications and counter-irritants in the treatment of inflammation.

**Savile-row, June, 1868.**

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## ON CERTAIN MODIFICATIONS OF MAREY'S SPHYGMOGRAPH.

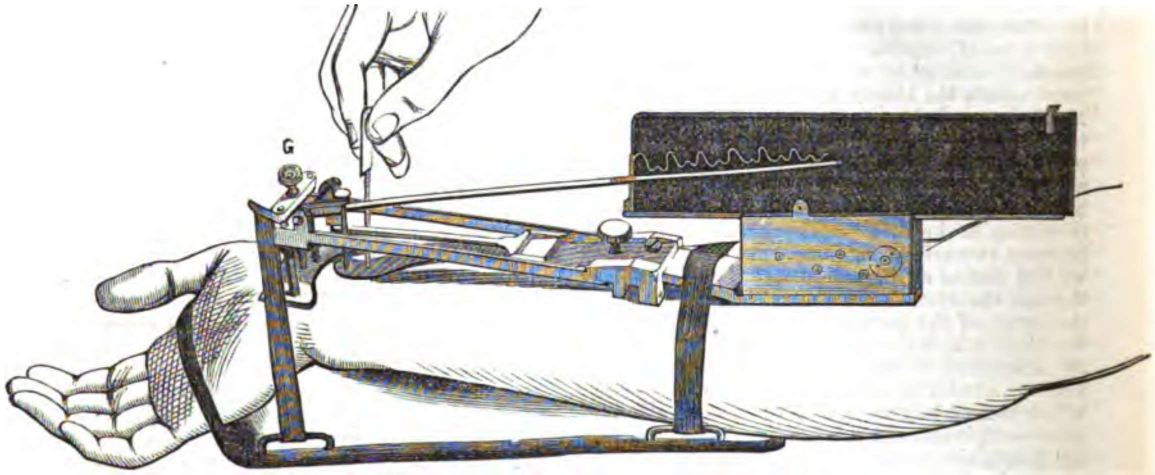
By Francis E. Anstie, M.D.

Several very important changes in certain details of Marey's sphygmograph have been made since its introduction into this country, and it is desirable that the profession should understand clearly the principles on which they have been adopted, for the discovery of these priciples has given an altogether new aspect to sphygmography. Ingenious and beautifully manufactured as the original French instrument was, it possessed certain faults which rendered its employment by anyone, except an adept, worse than useless, so many were the fallacies to which its indications might lead when it was applied in an improper manner. The alterations which have now been made, although they do not render the instrument absolutely perfect, do at least remove a great many difficulties from its general use, by making it much more easy of application in such a way as to get uniform results.

The first improvement was made in 1866 by

Mr. Berkeley Hill. The few persons who were working the instrument in England had felt, above all things, the annoyance which was produced by the clumsy method of *adjustment*. Nothing was more common than for five or ten minutes, or a quarter of an hour, to be lost in securing a tracing which represented the full power of the pulse, and it not very unfrequently happened that no tracing could be obtained at all. Mr. Hill perceived that it was necessary that there should be a uniform position of the hand and arm, that the limb should be solidly maintained in that position, and that the fastening should be of such a character that when once the tactile spring had been so placed on the artery as to receive its fullest pulsations, there need be no more adjustment, but the tracings might be taken immediately. The reader will observe, in reference to Fig. 1, that these purposes are admirably secured by the pad on which the arm rests, and the elastic bands by which the sphygmograph is held in place. The hand is bent back over the thick end of the cushion, and fastened by an elastic strap across the palm, which should *always* be drawn tight enough to make the knuckles *touch the table or bed*. The radial artery is thus projected to the utmost, and the application of the instrument is in every way facilitated, as well as made more accurate and certain.

Fig. 1.



Even more important is the new apparatus made by Messrs. Weiss, and a similiar arrangement by Mr. Meyer, for the *graduation* of the pressure of the tactile spring upon the artery. It is not too much to say that this improvement, the principle of which originated with Dr. Burdon-Sanderson, has put an entirely new value upon the sphygmograph, increasing indefinitely the precision of its record. I must ask the reader to follow me carefully in my explanation of the matter, because it is evident, from the remarks which I frequently hear made, that the new arrangement is much misunderstood.

The first commencement of the new mode of modifying pressure was owing to the observation by Dr. Sanderson, that certain fever pulses were too weak to be effectively recorded unless the spring of the sphygmograph were weakened by *extending it at its free end*. This was at first accomplished by putting pledgets of lint, next by putting blocks, of various thickness, under the brasswork of the instrument at the end towards the wrist. By these means the instrument was pushed away from the artery, and the free end of the spring had to be extended (by turning its *little* screw) in order to bring it in contact with the radial. Dr. Sanderson then reconsidered the whole principle of spring pressure; and he arrived at the conclusion that the *large* button in the centre of the instrument, which was devised by Marey for the purpose of altering pressure, cannot conveniently be so used as to modulate pressure in uniform gradation, even for high pressures, while for the weaker pulses it does not provide the means of sufficiently weakening the spring. He adopted the principle of *fixing* the centre button at a definite pressure of 300 grammes, which it was supposed would be enough for the *most resistent* pulses; and when this required to be diminished, it was done by putting blocks of different thickness under the wrist end of the sphygmograph (screwing down the free end of the spring in corresponding degree). The distance between the tactile spring and the writing lever, having been measured (in tenths of an inch) when the 300 grammes pressure was on, was remeasured after the free end of the spring had been extended sufficiently to develop the maximum pulse. The proportion between the two distances showed the amount to which the pressure has been lowered—e. g., if at 300 grammes, the distance was 5–10 of an inch; then an increase of the distance to one inch would mean a reduction of pressure to 150 grammes; and so on.

Dr. Sanderson's principle being established, it only remained to make its mechanical application easy. This has been done at my instance by Mr. Foveaux, of Messrs. Weiss and Son's, and at Dr. Sanderson's instance by Mr. Meyer. Instead of the graduated blocks, which were inconvenient and wanting in precision, an apparatus is used for regulating the extension of the free end of the spring, which is represented in the woodcuts as G. [In the larger drawing, Fig. 1, and in Fig. 2 which represents the end view, Weiss's modification is shown: in Fig. 3, an end view, Meyer's modification. The difference is only in the most trifling

FIG. 2.

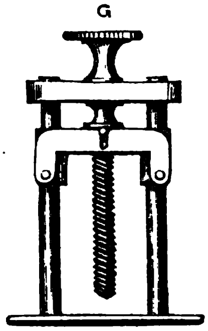
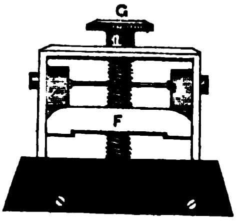


FIG. 3.



details.] By turning the screw at G, after the instrument is fastened on the arm at 300 grammes pressure,* the sphygmograph can be separated from the artery exactly to such a distance as shall ensure that when the free end of the spring is screwed down so as again to rest on the artery, the maximum pulse-curve will be secured. By measuring *the distance between the tactile spring and the horizontal brass rod immediately above it* (*vide* Fig. 1), before and after the reduction of the pressure, one obtains two numbers, the proportion of which to each other shows the strength of pressure which produces a maximum pulse-curve. The measuring instrument is simply a little piece of boxwood, of about an inch and a half in length, graduated in tenths of an inch, and set in a little wooden handle. Further, at my suggestion, Messrs. Weiss have added a scale which (under certain conditions) shortens the process of measuring the pressure. One of the pillars of the little graduation apparatus is marked in tenths of an inch. When the sphygmograph is applied repeatedly to the same person, it is possible to make this scale serve instead of the wooden measure, after the latter has been once used. For example, supposing that on the first occasion of taking the pulse of a fever patient I find that the distance between the tactile spring and the horizontal brass rod must be increased from 3-10 to 6-10 inch in order to get the maximum pulse-curve. That means that the pressure is reduced to 150 grammes. [During these experiments the position of the hand must be invariable, the knuckles touching the table or bed, and the end of the tactile spring resting on a selected point of the artery, which should be marked and never varied.] Looking now at the scale on the brasswork, I see that the pillars of the graduation apparatus have shifted their position by so many tenths of an inch. Hereafter I know that, in the same position of hand and arm, so much alteration of the scale in the brasswork means, *in this patient*, so much alteration of spring pressure, and can thus read off the resisting power of the pulse on successive days in a comparatively simple manner.

The value of being able to *mathematically estimate* the resisting power of a pulse, which we owe in the first instance to Dr. Sanderson, is very great. The practical purposes to which it may be turned are very numerous, but I shall content myself with one which will not fail to impress the reader. If, on examining a patient with acute febrile symptoms (no matter from what cause), I find that the pressure which is best suited for bringing out the maximum pulse-curve is very low (say 100 to 120 grammes), I am pretty certain that the case will require wine. If, on the other hand, I discover that the pulse requires 200 grammes power to elicit its maximum trace, then the case does not, at any rate as yet, require stimulation.

Another item of improvement which has been made is the abolition of the check spring which used to guard the ascent of the writing lever. This has been proved to be always useless, and sometimes mischievous, as causing fallacious traces.

Finally, an important source of trouble in application, and of fallacy in result, has been removed by the substitution of smoked glasses scratched by a needle-point, for the old pen, ink, and paper of the writing apparatus. Glass slides are used, blackened with the smoke of paraffine; and the writing lever is armed with a needle-point. Friction is thus reduced to a minimum, and the resulting traces are delicate and beautiful. They may be preserved by varnishing the slide with photograpic varnish.

**Wimpole street, June, 1868.**

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## CASES IN MEDICAL JURISPRUDENCE.*

By W. BURKE RYAN, M.D. Lond., F.R.C.S.

CASE 1. *Atelectasis Pulmonum in a child five weeks old.*—This case is probably unique in the annals of medical jurisprudence, and will afford a lesson in medical ethics which may deserve attention.

On Jan. 4th, 1859, a child aged five weeks, died in Ledbury-road. A medical gentleman visiting another party in the house, was told of the circumstance, and shown a mixture which had been obtained the night before from a surgeon who had not seen the child, and of which a teaspoonful had been given. This gentleman very incautiously examined the bottle, and still more injudiciously expressed an opinion that there was laudanum enough in it to have killed the child.

After this of course an inquest was indispensable, and Dr Chas. Clarke, now of Adelaide, was requested by Mr. Wakley to make a postmortem examination. He wished my assistance and I now give a short description of the appearances presented, as well as of a microscopical examination kindly made by Mr. Quekett, accompanied by two drawings on wood by Mr. Searson under Mr. Quekett's supervision. The result will show how annoyingly the matter might have turned in ordinary cases against the surgeon prescribing while the facts adduced can only make it a matter of the utmost surprise how the child could have lived to the time it did. I regret that the space I could expect in the pages of THE LANCET prevents my entering fully into the literature of the subject.

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* Since this was originally written, Dr. Sanderson has come to the conclusion that 400 grammes is the best maximum at which to fix the centre screw, as it appears there are a few pulses for which 300 grammes is not enough pressure.

* Read in abstract before the Royal Medical and Chirurgical Society.

The following is the composition of the mixture, of which scarcely a teaspoonful was given eight hours before death: Syrup of squills, two drachms; compound tincture of camphor, sixteen minims; water, one ounce. It will be seen that two drops of the compound tincture of camphor could hardly be said, even under such circumstances, to have a deleterious influence. Besides the child had no appearance of having during life suffered from an opiate.

Emily P——, aged five weeks, labored under cough on the evening on Jan. 3rd, 1859, and died on the morning of the 4th. The mother, after attending to the child, fell into a short sleep, and when she awoke the child was dead. The post-mortem examination took place on the 11th. The child seemed in good condition of body, rather plump, with a rosy hue on the parts exposed to atmospheric action. The brain was evidently much congested, black dots appearing on slicing it transversely. The blood was dark and clotted in the sinuses and veins. No appreciable effusion into the ventricles. The thymus gland was large, and gorged with a white fluid of a chylous character, about half a drachm of it occupying the central cavities. On opening the thorax the lungs presented a solid appearance, firmly contracted towards the back part of chest inelastic, and leaving much of the pericardium exposed; *no crepitation in any part*, and in cutting into them they showed all the appearance of lung in a fœtal state—the usual sanguineous serum being absent; they weighed 18 drachms, or 1080 grains. The pericardium contained two or three drachms of serum, and the heart itself was plump, hard, and enlarged, as if bursting with its contents. The right chambers were filled with perfectly black, clotted blood, which was equally black, but in small quantity, in the left. Each pleural cavity contained about an ounce of serum. The foramen ovale and ductus arteriosus were pervious. The stomach was nearly empty, containing about two drachms of dark grumous fluid. The liver was large and fully congested, as were also the kidneys. On cutting into the abdominal walls a deposit of fat was observed, and the intestines appeared healthy.

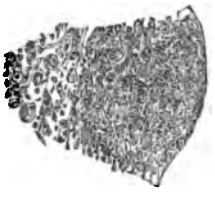
With the heart attached the lungs sank rapidly in water; the heart being detached they also sank rapidly in their entirety. They were divided into several pieces and all sank quickly, so as to cause Mr. Wakley to say to the jury that he had never seen anything approaching it before, and to express his surprise how the child could have lived; adding that it could only have required the slightest impediment to respiration in order to cause death. *Not the smallest piece floated.* On inflating part of the lung it partially floated, but most of the air soon escaped again. Indeed, inflation was quite imperfect, the air entering with great difficulty, as if owing to an inexpansible condition of lung.

I left several pieces of the lung with Mr. Quekett, together with a note saying, "I now send you the *pared-off edges of the uninflated lung.* You will find two of the pieces, weighing only one-half and three-fourths of a grain respectively which sink as rapidly as the rest. An examination of these is perhaps all that is necessary in order to render the subject perfect." Some inflated portions were also sent. Mr. Quekett replied as follows:—

"Royal College of Surgeon's, May 7th, 1859.

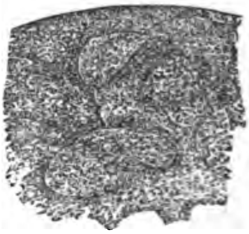
"Dear Sir,—I have made many observations upon the lung of the young child which you put into my hands for that purpose. I find that by far the greater part of the specimens are so much solidified that they not only sink in water, but, on examination with a pocket lens, exhibit little if any trace of cellular structure. A few pieces (and these I have since learnt had been attempted to be inflated) sink much less readily in water; in these a slight trace of air-cells may be seen with a pocket lens, but on making thin slices and examining them with a power of 250 diameters, all the more solid parts appear to be made up of small cells or granules, which, for want of a better name, may be called exudation-cells. These cells adhere very firmly together, so that a section, however thin, when placed in water between glasses for microscopic examination, was so coherent that the operation of tearing with needles would hardly allow of a proper isolation of the individual cells, and such a section would present the characters indicated by Fig. 1. In some parts there were slight indications of fibrous tissue, which was not disposed in the form of circles like that employed in the construction of the framework of the air-cells. Those parts of the lung which were above stated to exhibit under a low power the character of fœtal lungs in general, when treated in the same way as the more solid parts, certainly exhibited the fibrous structure of the air-cells very distinctly in some points; but although the air-cells were marked out, as shown in Fig. 2, they were in most instances filled up by the small granules or cells, which rendered them almost as solid as the denser portions shown in Fig. 1."

FIG. 1.



Dense portion of fœtal lung.
120 diam.

FIG. 2.



Air-cells marked out.
90 diam.

The fact that the lungs of children who had breathed, and lived even for a considerable time, will sink in water, was noticed by Morgagni, De Haen, Kieffer, Wrisberg, Hoffman, and others; but Dr. Edward Jörg, of Liepzig, was the first fully to investigate and describe the state of things which led to this, under the name of atelectasis, or incomplete expansion or permanence of the fœtal condition of the lungs. It may be either an absolute disease, or may arise from great weakness on the part of the child, or mechanical impediment to inspiration preventing full expansion in an otherwise normal lung. Dr. Jörg believed that this unexpanded state of lung might occur in mature or immature children, and that the process of parturition much influenced such a result: for instance, where the head was subjected to great pressure, or where on the other hand, a very rapid delivery took place, as well as in cases where children lose much blood by the umbilical cord, or are born with powers so feeble they cannot live without placental circulation. I append a case of this latter description. If the first inspirations, owing to certain conditions of the child, be feeble, part of the lungs may become inflated, while other parts remain wholly unreached by atmospheric air, and will thus remain in an unexpanded state, and may subsequently become consolidated or deteriorated, so that many or, as in the present case, nearly all traces of vesicular structure may disappear; or it may so happen that vesicular structure may have been undeveloped from the first *commencing with positive disease.*[*]

The subject is involved in much obscurity, and we are wholly at a loss to account for the fact of children living even for a considerable time, and yet after death leaving no traces of respiration, the lungs, in fact, appearing in their fœtal condition. Bernt gives three cases, one of which had arrived at the full period of utero-gestation, and lived a day. The lungs sank when tried in their entirety, and on being cut, a few fragments only of a scarlet color floated. In another case the child was a seven months one, lived two hours, and its lungs sank in water.

In Henke is given a case by Remer where a child lived four days, so that the funis had time to separate naturally. The lungs, whole and in fragments, sank in water. Heister[†] gives a case where a very feeble infant lived nine hours, whose lungs sank; and Orfila[‡] found every portion of the lungs sink in water in a child that had lived eleven hours; and in three other cases, two being mature, in which the children lived four, six, and ten hours respectively, the lungs sank when divided. Billard,[§] from meeting some cases of this kind, imagined that it was possible for children to survive their births *even days* without breathing. Schenk mentions the case of an infant who cried several times during the *four days* it lived, and yet its lungs sank in water.[‖] The substance of the lungs was healthy; there was no crepitation. The lungs being separated, and cut each into fifteen pieces, all sank rapidly to the bottom, no bubbles escaping on compression below the surface of the water. The other case was that of a mature child that lived six hours, and whose lungs sank in water. In Dr. Albert's case the child lived thirty-six hours, being occasionally convulsed. On inspection there was no appearance of disease. The whole lung appeared in a fœtal condition, and immediately sank in water.

The case here described is the only one I find on record of perfect atelectasis in a child so old. The sinking in water was not presumably the result of any disease other than that of non-development or deterioration of the vesicular structure. Appearances resulting from diseases, such as congestion, hepatisation, pneumonia, scirrhus, œdema or tubercle, would have been very different and distinguishable by care, while the puzzling nature of the present case is still more fully borne out, as well as its interest enhanced, by the careful microscopical examination of Mr. Quekett. Had the state of the lungs been the result of any known form of disease the cell-structure could scarcely have been altered to the form described. Some fragments of lung must have floated in water, and the weight should, at the end of five weeks, have exceeded 1080 grains (2¼ oz.)

CASE 2, *wherein a fœtus arrived at the end of the fifth or beginning of the sixth month of uterine life, and weighing not quite 1¾ lbs., after twenty-eight minutes' occasional respiration, a small portion of lung floated in water.*—I attended Mrs. H—— in a case of typhoid fever. She was in her fourth pregnancy. My attendance commenced on May 6th, 1859, and on June 4th, at which time she considered she was about five months pregnant, she was delivered of a very diminutive fœtus. The child was alive, moved, and breathed very feebly occasionally, but emitted no sound, and the chief evidence of life was given by the heart's action, and by the placental circulation, which was strongly kept up. I folded the infant in flannel and watched the result with much interest. The placental circulation was carried on for about twenty-eight minutes, gradually getting weaker, and the moment it ceased life seemed extinct.

The weight was 1¾ lbs. less 1 drachm. The heart, lungs, and thymus gland weighed 1 oz. 75 grs. avoirdupois, and sank in water, as they did when the thymus which weighed 32 grs., was separated.[*] Both lungs sank rapidly when separated. The left lung, cut into fragments, sank. The upper and middle lobes of the right lung were cut into twenty pieces, and all sank; the lower lobe was cut into fifteen pieces, and all sank but two, weighing 3¼ grs. and 3¼ grs. The heart weighed 102 grs., thus leaving the weight of the lungs 420 grs. Foramen ovale quite open, and ductus Botalli pervious. Right auricle and ventricle full of black blood. Left auricle contained about two or three grains' weight of black blood, and the left ventricle was quite empty.

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## CASES IN PRACTICAL SURGERY.

BY T. J. ASHTON.

Consulting Surgeon to the St. Marylebone Infirmary.

### No. III.

### STRANGULATED HERNIA.

THE cases in previous communications were those of immediate treatment of stricture of the urethra, and amputation of the thigh. The following relate to strangulated hernia relieved by operation.

*Femoral hernia; strangulation; operation; recovery.*—M. A. D——, a female, aged forty-nine had had femoral hernia of the right side for upwards of twenty years; and although fully acquainted with the nature of her disease, she had never worn a truss. For three days previous to her admission into the infirmary she had suffered from complete constipation, attended with tenderness and increase in the size of the tumour; vomiting had supervened, which became stercoraceous soon after her admission. The symptoms being urgent, and several attemps to reduce the hernia having been made without success, my colleague, Dr. Randall, fully concurred with me in the advisability of an immediate operation. Accordingly, the patient having been brought under the influence of chloroform, I cut down on the sac, and the stricture, which was at the internal opening of the femoral canal, was divided by an incision directed upwards and inwards. The sac contained a large piece of omentum, beneath which was a portion of small intestine, of a dark-chocolate color; the latter was replaced within the abdomen, and the omentum, which was hypertrophied and adherent, was left in the sac. The edges of the wound were brought together with sutures and plaster, and a pad and bandage applied. No medicine was given. On the following and on each subsequent day the bowels acted freely, and a rapid recovery ensued.

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[*] De Pulmon, Vitio-Organico. Lipsiæ, 1832. Die Fötuslunge, Grimma, 1835.

[†] Morgagni's Works, vol. i.

[‡] Méd. Lég., i., 375.

[§] Maladies des Enfans, Viabilité.

[‖] Journal der Pratischen Heilkunde, Band xxvii., Sept. 3.

[*] Mr. Davies mentions a case (*Med. Gaz.*, vol. xl., p. 1022) of a child 1¾ lb. in weight that lived ten minutes, but no post mortem was made.

*Strangulated femoral hernia in a woman, agea seventy-six; operation; death on the eleventh day afterwards.*—F. J.——, a female, aged seventy-six, was seized with all the symptoms of strangulated hernia, which had existed several days previous to my seeing her. The patient was totally unaware of the existence of her rupture. On examination, deep in Scarpa's triangle of the right side was an obscure, doughy tumour, to which no impulse was communicated when the patient coughed, and she complained of only slight tenderness when it was handled. Her pulse was about 100; countenance composed, though stercoraceous vomiting was constant. The symptoms left no doubt on my mind as to the nature of the disease, and I determined to operate, although as regards the tumour itself some of the prominent characteristics of strangulated hernia were absent. Chloroform having been administered, I cut down on the tumour, and opened a hernial sac, containing a portion of omentum, much altered in structure, and adherent. Beneath this, and close to the neck of the sac, a small portion of intestine was seen, which receded within the abdomen immediately the constricting tissues were severed. The omentum was so firmly adherent that it was left in the sac, and the edges of the wound were brought together in the usual way, and a bandage applied. The patient slept well at night, and on the following morning the bowels acted naturally. She took food freely. For eight days the bowels acted regularly; her appetite was good, and her countenance cheerful, and she appeared to be progressing favorably towards recovery, with the exception that there was little attempt at union in the wound, which discharged a thin serous matter. On the ninth day it became evident that her strength was failing, and she died without any suffering on the eleventh day after the operation.

A post-mortem examination revealed a slough, about the size of a threepenny piece, in a portion of the ileum. The intestine was united to the abdominal parietes by adhesive inflammation, and the slough was opposite the wound, so that had life been prolonged, and the intestine given way, fæcal extravasation would not have occurred. No traces of inflammatory action existed beyond the immediate seat of injury.

*Large irreducible inguinal hernia; strangulation; operation; recovery.*—R. G——, aged seventy-four, a man of dissipated habits, had long suffered from irreducible inguinal hernia, which had descended into the scrotum, and distended it to the size of a child's head. When I saw him, strangulation had existed for four days; the tumour was very tense and painful, and stercoraceous vomiting was constant. The taxis having failed to reduce the size of the hernia or relieve the symptoms, the operation was at once proceeded with. An incision two inches in length was made over the neck of the sac, and the remaining structures were then divided, and the stricture incised by a probe-pointed bistoury guided on the forefinger of the left hand. The wound was closed by sutures, and a bandage applied. Immediately after the operation vomiting subsided, and he became free from pain. The case was not encouraging; for, independent of his age and dissipated habits, he had a severe attack of bronchitis complicated with gout, to which he was subject. No aperient medicine was administered; the bowels acted the day after the operation, and continued to do so regularly. He made a good recovery from his several maladies, and continues well at the present time.

*Inguinal hernia; strangulation with urgent symptoms; operation; death from phthisis.*—J. S——, a male, aged forty-nine, a patient in the infirmary in an advanced stage of phthisis, had been the subject of inguinal hernia for some years. On the morning of the 20th of February, 1866, he was seized with acute symptoms of strangulation. During a fit of coughing the hernial tumour became suddenly larger; and when I saw him at midday it was very tense and exquisitely painful; pain also extended over the abdomen, and he was unable to bear even slight pressure. Vomiting existed, the pulse was rapid, and his countenance had an aspect of extreme anxiety. Mr. Fuller had carefully applied the taxis, but without effect. The symptoms being urgent I at once had the man placed on the operating table; and the hair having been shaved off the parts, with the hand unsupported, the tenseness of the tumour not permitting the integument to be pinched up, I made an incision about three inches in length, commencing a little above and to the outside of the external abdominal ring, and afterwards carefully dissected down and exposed the sac, which was opened, and the forefinger of the left hand passed within the inguinal canal. The stricture was at its internal opening, and so tight as to render it somewhat difficult to get even the nail beneath it; but having done so, I guided a hernia knife beneath the constricting fibres, and divided them upwards. The sac contained some fourteen or sixteen inches of small intestine, which was of a dark-chocolate color, but still retained its glistening appearance. As is usual when so large a portion of the intestine is protruded, it required a little tact to return it within the abdomen, and to retain it. This being accomplished, the edges of the wound were brought together with sutures and plaster, and a bandage applied. The patient was removed to bed, and a large but thin linseed poultice applied over the abdomen. Immediately after the operation all the symptoms abated, and by the evening but little tenderness of the abdomen remained. He slept soundly during the night, and by the following morning all cause of apprehension from the rupture had passed away, The bowels not having acted by the third day, a dose of castor oil was administered, which was all the medicine he took with special reference to the surgical disease; and, as far as the hernia was concerned, he progressed favorably, and the wound was nearly healed, but he succumbed to the pulmonary disease, dying nine days after the operation.

A post-mortem examination revealed extensive tubucular disease of the lungs. There was nothing to indicate the portion of the intestine that had been strangulated, the visceral and parietal peritoneum being perfectly free from any trace of inflammatory action.

*Strangulated femoral rupture; herniotomy; rapid recovery.*—M. K——, aged forty, a married woman, was admitted late at night into the Marylebone Infirmary with symptoms of strangulated femoral hernia. She was seen by Mr. Fuller, the resident surgeon, who ordered her to have a hot bath, and subsequently applied the taxis to a swelling in the left groin, but without effect in reducing its size or relieving the symptoms.

Two years prior to her admission to the infirmary she had perceived a swelling in her left groin, which increased on exertion and disappeared on her assuming the recumbent position. She soon sought advice, and was informed of the nature of the affection, and recommended to wear a truss; this she neglected to do, as when the tumour descended she was always able to put it back. Two days before being operated on the rupture came down to a greater extent than usual, and she was unsuccessful in her attempts to return it.

Early in the morning after her admission I saw the patient with my colleague, Dr. Randall. A tumour, the size of a hen's egg, occupied the left groin; it was elastic to the touch, immovable on the deeper parts, and tilted abruptly upwards over Poupart's ligament, producing a sharp and deep sulcus between it and the subjacent textures. Her countenance was anxious, her pulse quick, and the skin was somewhat hotter than natural; her bowels had not acted for five days. Vomiting had been frequent, but was less the night of her admission to the infirmary, and she had slept at intervals. It being evident that an operation was necessary for her relief, she was at once placed under the influence of cholroform, and I then cut down on to the neck of the sac and divided a very tight stricture. A coil of small intestine, highly congested, occupied the sac; it was returned within the abdominal cavity, and the wound closed in the usual manner. No medicine was prescribed. Directions were given to keep her quiet, and her diet was to consist of arrowroot and beef-tea. Soon after the operation all anxiety of countenance disappeared; her pulse improved; and on the following day she was quite free from pain. The bowels acted on the third day, and she was then permitted a meat diet, which she took with relish. In a week she was able to leave her bed, and in a few days afterwards the wound was quite healed.

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A CASE OF

# MEDULLARY CANCER OF THE JAW IN A CHILD.

## TWO SUCCESSFUL OPERATIONS; RETURN OF THE DISEASE; DEATH.

By Christopher Heath, F.R.C.S.,

Assistant-Surgeon to University College Hospital, and teacher of Operative Surgery in University College.

The following case is of considerable interest, as illustrating the occurrence of undoubted medullary disease in a member of a large and healthy family with no history of cancer. The rapidity of the first growth in the lower jaw was such that the patient must shortly have sunk had the disease been allowed to go on. The operation secured an apparent restoration to health for exactly six weeks, when the disease reappeared, and in four days made such extraordinary rapid progress that the patient's life was again in jeopardy. A second operation was followed by perfect recovery, and good health for ten weeks, when the disease again showed itself on both sides of the face, and, being now beyond surgical control proved rapidly fatal.

There can be no question that the poor child's life was prolonged for five months by surgical interference, as was gratefully acknowledged by the parents; and as patients ordinarily make good recoveries from even severe operations upon the jaws, it is to be regretted that cases are frequently allowed to pass into a hopeless state before active treatment, which offers the only chance for them, is undertaken.

Miss M. R——, aged five, was sent to me by Mr. Edward Randall, of Finsbury-square, on Sept. 9th, 1867, with a tumour of the lawer jaw. She is the tenth of a family of eleven healthy children, and her parents are strong and robust. She is fat and well-nourished, though thinner than she was, and had perfect health until the last week in July (seven weeks before,) when her mother noticed that the second temporary molar tooth on the right side was raised above the others, and the gums looked swollen. Her mother took out the tooth, which was quite loose; but the swelling increased, and the first permanent molar became loose, and was extracted by Mr. Cole of Ipswich. She was under the care of Mr. Mumford of Ipswich, who used nitrate of silver lotion without benefit, since the growth continued to increase rapidly, so that she has been unable to eat solid food for a fortnight.

The whole of the lower jaw on the right side was considerably enlarged, and on opening the mouth, a large, irregular, reddish mass was seen filling up all the cheek on the right side, the extent of which it was impossible to define. The tumour had a semi-elastic feel, and there were apparently no enlarged glands. There could be no question as to the propriety of, and necessity for, immediate operative interference, which I arranged to undertake on the following day.

On Sept. 10th, 1867, the patient being under the influence of chloroform, I got my finger into the mouth, and then ascertained that the jaw was completely involved in the tumour, the elastic feeling being communicated through the bone. I divided the lower lip in the median line, and carried the incision round the border of the tumour to the level of the lobule of the ear. I then dissected back the flaps, and having divided the facial artery, tied it. Having extracted a loose tooth, I then sawed through the jaw immediately to the right of the symphysis, and detached the tissue on the inner side. On making traction, the tumour came away, leaving a rough, irregular piece of the jaw and a small portion of the tumour behind. These I subsequently extracted, including the condyle and coronoid process, which latter broke off and was removed separately. The internal maxillary artery was not wounded, and there was no great hæmorrhage, four ligatures being applied and cut short. The lip was brought together with two hare-lip pins, and the remainder of the wound closed by wire sutures, a silk suture being put in the red of the lip. Collodion was painted over all. No further dressing was applied. The child rallied, and took some brandy-and-water. In the afternoon she was quite comfortable, and the pulse was good. There was a little oozing from the wound. In the evening she had some sleep, and had taken a little soup. She drank water frequently. There was no bleeding. The tumour proved to be of soft consistence, and had destroyed all the body of the jaw and a portion of the ramus; the condyle, coronoid process, and upper portion of the ramus being healthy. The point of section of the bone was healthy, and close to it were the canine and first temporary molar. In the upper and posterior part of the growth was the crown of the second permanent molar, carried quite out of position. To the naked eye the tumour presented a loose fibroid appearance. Mr. Bruce kindly examined a portion microscopically for me, and reported numerous fibres, with here and there development of cells, seemingly medullary.

Sept 11th.—She had had a comfortable night. The mouth syringed out with Condy's fluid three times. The child took some milk and soup, and was quite comfortable all day.

13th.—Child quite comfortable and happy, and takes liquid food well. I removed the hare-lip pins.

14th.—I removed the sutures. The wound was healed except at the junction of the vertical with the horizontal incision, where there is a minute opening. The patient to be dressed and get up to-morrow.

17th.—Very comfortable and happy. The child eats bread-and-butter easily, and talks quite intelligibly. The interior of the mouth appears to be nearly healed. The left half of the jaw is thrown a little towards the median line.

18th.—She went out in a perambulator.

23rd.—She went home to the country quite well, with the exception of one spot at the angle of the cicatrix, which still discharged slightly.

Oct. 21st.—I heard that she was quite well.

26th.—The child was brought to town on account of a return of the growth. The mother says she first noticed something wrong on the 22nd, when there was a small lump in the mouth. This grew very rapidly, and Mr. Mumford advised her coming up at once.

I found a mass within the mouth on the right side, nearly as large, and of precisely the same appearance, as the former growth. It involved a portion of the left jaw, and extended to the canine tooth on the left side, the incisors being loose. The cicatrix was sound except at the junction of the vertical with the bronchial incision, where the skin was ulcerated and there was a fungus protrusion of the size of a cherry. I explained the serious nature of the case to the parents, and said that an immediate operation was the only hope, as, if left, the growth would rapidly fungate and destroy the child, and they consented to the operation proposed.

On the 27th October, 1867, I divided the lip and opened up the old cicatrix to a great extent, surrounding, however, the portion involved in the fungus. I then dissected back the flap, and found the growth extended to what would have been half way up the ramus. I isolated it, and then dissected back the left half of the lip. I next removed the first molar, and sawed the jaw close in front of the second molar. Having put a string in the tongue for safety, I then divided the sublingual mucles, and got the growth and piece of jaw away entire. Two or three large vessels were tied, principally under the tongue, and a few small ones. I washed the entire wound carefully with a solution of chloride of zinc (forty grains to the ounce), brought the lip together with two hare-lip pins, and the remainder of the wound with sutures, and then fastened the string attached to the tongue to the upper pin in the lip. The child bore the operation very well. In the evening she was cold and restless, but rallied with the use of hot bottles and a little brandy.

A section of the tumour showed a beautiful specimen of soft cancer. Both tumours are now in the museum of the College of Surgeons.

Oct. 28th.—Patient had had a good night, and was asleep when I saw her at nine o'clock, and warm and comfortable. She passed a quiet day, taking a good deal of milk and a little wine. She was a little distressed by the ligature in the tongue.

29th.—She was comfortable, and took liquid food pretty well. Ordered her mouth to be syringed out.

30th.—Had passed a quiet night. I cut the thread in the tongue, and she was then able to move it about pretty freely. There was no difficulty of respiration. The wound was looking healthy, but the upper part of the old cicatrix was inflamed.

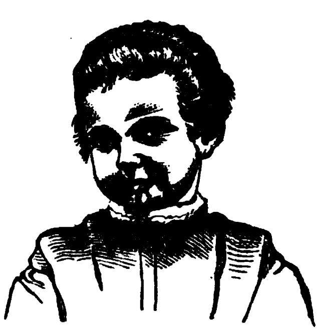
31st.—I removed the hare-lip pins and three of the stiches, leaving those near the angle of the wound for the present. A little pus was pent up in the upper part of the old cicatrix. which I evacuated.

Nov. 1st.—I removed the remaining stiches. The wound was healing well, except at the point where the skin was implicated and removed, and there it gaped.

3rd.—The child was up and dressed. She was able to close her lips and move her tongue very satisfactorily. She takes her food fairly, and has sucked a chicken-bone.

She continued to improve rapidly, and by the 10th, when she returned to the country, the wound was perfectly healed with the exception of a small spot where the portion of skin had been removed. She had perfect control over her tongue and lips, and could move the tissues of the chin very satisfactorily. There was no appearance of any return of the growth at this date.

Dec. 16th.—I heard from the father that the child was perfectly well, and that there was no appearance of return of the growth. He sent me her photograph, from which the accompanying figure was taken, to show how little deformity resulted from the double operation.



On the 8th of January, 1868, I heard from Mr. Mumford that the disease had reappeared at the symphysis, and also in the masseteric region on both sides, there being loss of appetite, exhaustion, and general irritability of system. The poor little patient lingered for a month, and died on Feb. 9th, just five months after I first saw her.

Cavendish-place, June, 1868.

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### ON A

## CASE OF FEMORAL ANEURISM,

### TREATED BY

## INCISION OF THE SACK AND LIGATURES ON THE VESSEL ABOVE AND BELOW.

By John Gay, F.R.C.S.,

Surgeon to the Great Northern Hospital, etc.

In the course of the last summer two patients were admitted into the Great Northern Hospital, within a week of each other, with aneurism of the femoral artery on the proximal side of the tricipetal foramen. In both cases pressure by the tourniquet was tried for a week, with such intermissions as were necessary in order to spare the skin from ulceration. Both patients stood the pressure well, and did what they could to ensure its success. Both, however, gave in at the end of that time, expressing their earnest desire that any other treatment should be substituted, inasmuch as pressure—even digital pressure—could no longer be borne. I tied the femoral in each case, and without a bad symptom. One, however, subsequently died of heart disease. There was some bruit, discernible at the time of the operation, from disease of the aortic valve cusps. The other came to the hospital last week. The operation had been entirely successful.

On the 7th of April, I was consulted by a gentleman aged twenty-eight, a finely grown, robust person, on account of a tumour in the middle and inner side of the thigh, corresponding with the situation of the artery above the tricipetal foramen. He had complained of pain in that region, more or less, for a period of two years, and had consulted some medical gentlemen respecting it. There was no swelling, however, so far as he was aware of, until within a few days of his seeing me. On examination, it had all the signs of being aneurismal. It was about the size of a large walnut; pulsated; was, to a certain extent, squeezable; became evidently less on obstructing the femoral above; and had a loud bruit; but it was painful and tender on manipulation. I at once decided that it was aneurismal, and recommended compression on the artery above. The patient could not, however, conveniently lay up for some few days. I therefore had a firm broad elastic band placed on the thigh in the interim, with one or two pads, as additional compresses on the tumour, to be used as either could, singly or both together, be borne. Both pads were borne, and gave great relief. On examining the tumour on the third day, I was surprised to find that the pulsation had entirely ceased, and that the bruit had changed from a clear blowing to a rougher sound. The tumour was somewhat harder, but was still, apparently, to a certain extent lessened, by obstructing the femoral in the groin.

He continued to wear the bandage until the 13th, when, notwithstanding the change in the condition of the tumour, I advised him to lay up and have a tourniquet applied. He bore the instrument well for nearly six days; and apparently with the best results. A slight rough bruit, however, remained, with a small, hard, and almost incompressible tumour, and entire absence of pain. I advised rest for some days, and then gradual return to his duties, keeping up pressure at the same time on the tumour by the bandage.

On the third day after the removal of the tourniquet, on turning very cautiously in bed, he was attacked with severe pain in the tumour, as though something had given way; and he became very faint and sick. From that time the swelling gradually increased, the pain became more severe, and there was still a bruit; *but there was no pulsation*, neither did pressure on the artery exercise any material influence upon it in regard to size or compressibility.

The character of the tumour now appeared to be more questionable; and a doubt occurred to my mind whether it might not be some outgrowth from the bone or periosteum, which, by extension at its base, had changed sides, as it were, with the artery; thus accounting for the pulsation at first and its cessation. I could trace the artery *to* the tumour above, and although beyond that it was no longer distinguishable, yet it seemed to mount over it, or at least to pass beneath its upper surface. Pressure of no kind could be borne. The swelling increased, until, by the 2nd of May, it occupied a large space on the inner aspect of the limb, being seven inches in diameter; and it was excessively painful. The patient's strength began to fail. Mr. Paget saw the case with me, and, after careful examination, could not satisfy himself as to the real nature of the swelling. We, however, determined to explore the tumour, prepared for any emergency.

On the 5th, after being placed under the influence of chloroform, with the kind and able assistance of Mr. Paget, Mr. Henry Smith, and Dr. World, I punctured the swelling; when it became obvious at once that, after all, it was aneurismal. I enlarged the wound in the sac through its full length in the course of the artery to the extent of seven inches, turned out a large quantity of clot, and not without difficulty (on encountering which

I need hardly say how much I was aided by Mr. Paget and Mr. Smith—Dr. World was most ably administering the chloroform) succeeded in tying the vessel above and below its communication with the sac. The tourniquet kept the bleeding in check, and was only occasionally loosened to indicate the seat of the vessel, and its open mouth. The wound was brought together by sutures and bandage; and the limb, enveloped in wool, was placed on a sling. The patient passed a restless night, and wandered occasionally; his tongue was dry and furred in the morning; his pulse quick; and he complained of sickness—apparently from the chloroform. After three days these symptoms began to ameliorate, the wound to discharge thin bloody fluid, and the thigh, hitherto much swollen, to subside. From this period everything went on well; portions of the cyst came away from time to time with the discharge, which was very profuse, bloody, and mixed with clots of blood; the tongue began to clean, and the appetite to return. The under ligature was removed on the fourteenth, the upper on the twenty-first day; and, whilst I am writing, the wound has all but entirely closed, and the patient is taking more or less walking exercise daily on the South Coast.

The case is one of considerable interest. The pain preceding the appearance of the swelling was supposed to be rheumatic or periosteal. Its history during treatment appears to be that the pressure on the sac, by bandage and pad, had cured the aneurism, as far as it was curable by clot of obliteration—in all probability of the portion of artery with which the sac immediately communicated; whilst the employment of the tourniquet tended to its further consolidation, and the consequently increased probability of the cure being permanent.

The active return of the disease, *without pulsation*, probably arose from the giving way of the plug in the lower end of the artery; and this was, as Mr. Paget surmised, followed by rupture of the sac, and the aneurism becoming diffused. I could not, however, satisfy my mind that this had been the case. On discovering the nature of the case by puncturing the tumour, there appeared to be no alternative but the procedure that was carried out.

It is the old operation for aneurism in the limbs recommended by Antyllus in lieu of amputation. It appears, however, to have been so frequently followed by gangrene of the limb, secondary hæmorrhage, and death, that Pott discarded it, still preferring amputation. And I believe I am correct in saying that, in the annals of very modern surgery, a popliteal aneurism has been cut into by mistake for abscess, and the limb amputated in consequence with the utmost dispatch. Pelletan, however, I find from "Holmes's Dictionary," recorded notes of ten cases—four of his own, and six in Italy; of which seven cases were successfull. Whilst two others, on the femoral and popliteal artery, are to be found in Roux's *quarante Années* both of which were successful. Mr. Syme has succeeded in treating axillary and gluteal aneurism in this manner, and recommends it in these particular kinds of aneurism.

I do not regard the case described as an encouragement to such a plan of treatment, excepting under unavoidable circumstances—such as this case, perhaps, presented,—or, preferentially, in cases of axillary and gluteal, on account of the danger attendant upon ligature of these vessels on their proximal side. The operation is somewhat difficult on account of the liability to include other important parts besides the artery within the ligature when operating at such a depth, as well as from the inconvenience which results from displacement of the vessel by the sac.

If in this case I had placed a ligature on the femoral at first, I believe the operation would not have been required; and I must confess, from experience and observation, to a preference for the ligature over the tourniquet *in cases of femoral and popliteal aneurism*. The time absolutely required for the consolidation of the sac and the arterial plug is longer than that during which *pressure* can be continuously tolerated, but not longer than that which is necessary for the removal of the ligature and repair of the wound after deligation.

May I be allowed here to pay a tribute of gratitude to the excellent sister, from the Rev. Mr. Dale's Institution for Deaconesses, who assiduously attended upon this case throughout. I could only contrast the comfort of the patient under such care with the indifference and often serious neglect that I have witnessed under the ordinary system of nursing. To the practical surgeon the institutions for the training of these excellent and self-denying ladies cannot be overestimated: they offer a guarantee for the recovery of the patient so far as this can possibly be promoted by the advantage of perfect nursing.

Finsbury-place, South, June, 1868.

# DYSENTERY: ITS SUCCESSFUL TREATMENT BY IPECACUANHA IN LARGE DOSES; ALSO BY A NEW REMEDY.

By Archibald Hewan, M.D., Edin.

Having had very large opportunity of witnessing the character and ravages of this terrible disease during a residence of several years as medical missionary at Old Calabar, on the West Coast of Africa, and having employed several remedies as means of cure with varying results, I feel bound to declare my testimony in favor of the ipecacuanha treatment, as being not only the least disappointing, but, when righly used, attended with most certain success. This treatment has been more than once brought to the notice of the profession in the columns of The Lancet, and I beg to add my humble name to the list of its advocates, while I urge, with all my heart, its use.

It was while battling with a very prolonged and peculiarly severe attack of the malady in a native that I saw for the first time an account of the successful use of this medicine in large doses in India. I had then been so frequently disappointed with the common treatment by astrigents, opiates, &c., that I had very nearly lost all confidence in them. I may mention, in passing, that I had found gentle laxatives, followed by small doses of rhubarb and quinine, do most good. But now I was glad to have an agent that promised such good and complete results. I put it into practice at once, and the result was most gratifying.

The natives themselves have no certain means of cure. For the most part they use enemata composed of the fresh leaves and barks of certain plants, having more or less astringency about them. But their mode of administration is rough, irritating, and very awkward. Very many die. Those who recover do so slowly and very tediously. The disease is common during the wet season, which begins about June, and is concurrent with the bringing in of the new yams, Indian corn, and other products at that time.

Fearing such an alarming disease, the chiefs and the better class of the community avoid eating new fruits for a considerable time after they have been first gathered in. Indeed it is one of the unmistakable signs of a *gentleman*, about which they are very particular, to be able to live on his old year's stock for some time after his less distinguished neighbors have had recourse to the new. A chief of any importance will not eat new year's produce till the ceremonies by way of thanksgiving have been duly celebrated. And this celebration does not take place till the chief's old stores are nearly empty, by which time new year's stock has been pretty largely stored and seasoned.

The Europeans who come to the place are mainly sailors, or, at least, connected with the shipping, and live on board the vessels lying in the river. They suffer in common with the natives from eating new yams, while they, moreover, are liable to dysentery as the result of exposure, fatigue, or other irregularities.

The loss of my case-book in the confusion and accidents of moving and travel, containing the details of my cases, makes it impossible for me to give a full account of them; but, perhaps, this is of little moment, as they would doubtless have occupied too much space for the columns of THE LANCET. It may, therefore, be enough if I say that the value of the remedy so pleased me in its results that I never thought afterwards of seeking for any other means of cure. Nor can I bring to my recollection any case in which the remedy failed; whereas from time to time before that I had the pain and anxiety of seeing one and another patient sink and die under the usual remedies, and with the conjoint skill and care of my medical brethren along with me.

But in urging this remedy I must not forget to state what is at once apparent, and that is the huge and ugly dose. One drachm of powdered ipecacuanha, mixed with water, forms a grim draught to look at. Not every patient would consent to take it, unless as a last resource. Smaller doses, from half a drachm downwards, have been tried, but in my experience they are much less effective. More frequent doses have in this way to be given, the nausea kept up unnecessarily. However, an intelligent and skilful medical friend of mine, then on the Coast, now in Liverpool, speaks highly of the smaller dose, in a case of chronic form of the complaint that came under his hands on board the steamer on his way homeward from the Coast.

Whether so large a dose as one drachm is necessary in this country I have not yet had an opportunity of satisfying myself. It is a matter worthy of investigation; and if a concentrated tincture of the root could be employed, the large dose would literally become a small matter.

So far as I can recollect I did not find that acute attacks yielded so readily to the large dose given at the onset. A native of Sierra Leone, a carpenter, aged thirty, was attacked. He was working on my house at the time, so that he sought relief at once. Thinking to cut the matter short, I gave a full dose—one drachm—of the drug; but the system seemed altogether in too irritable and excited a state. Mild aperients and sedatives, such as aconite, would, I think, have suited this case better at the first. He recovered more slowly than several others did.

I pass on to the new remedy. This is a discovery made by Mr. Kerr, surgeon, of Galt, Canada West, and is fully reported in the *Edinburgh Medical Journal* for June, 1865, and, if I mistake not, in some subsequent numbers of that journal. It was while enjoying the beautiful results of the ipecacuan treatment that I was called to attend the infant daughter of one of my fellow missionaries. She had suffered now and again from diarrhœa during dentition. At length the diarrhœa took on a dysenteric character. All the usual remedies were tried, but failed. The ipecacuan treatment remained. But what size of a dose should be given to so young a patient was the question, and not an easy one, to settle. All at once her father, intensely anxious, recollected a packet of medicine for dysentery a kind friend of his had given him when he was starting for the Coast. The nature of the remedy was then unknown to me, but as Mr. Robb had entire confidence in his friend who gave it to him, and as the case was desperate, I could not withold my full consent to its administration. Full instructions were written upon it. With much concern I watched the case from day to day. The result was cheering. From the time the first dose was given, or very soon after, the child fell into a quiet and comfortable sleep, such as it had not had for many a day before. It soon completely recovered, and is now living in Scotland with its parents, a vigorous and healthy child.

The remedy, as discovered by Mr. Kerr, is a composition of several plants, and at first sight may *seem* a very *unscientific* one. But as Mr. Kerr, in his interesting paper, which is worth reading, shows that he went to work on scientific basis, spent five or six years in working out his plan before coming to a conclusion, and that conclusion a satisfactory one, as alleged by those who have adopted it, it is, in my humble opinion, worth a careful trial as a means of cure in this dire disease. And I the more gladly take notice of it in comparison with the ipecacuanha treatment which I have been advocating, for whereas in the good results from ipecacuan you have the preliminary horror of the dose, like results are to be obtained from this new composite remedy *without any sickening disgust.*

To quote from Mr. Kerr's paper: "Its constituents, when the investigation was concluded, were as follows:—Four officinal—viz., opium, stramonium, dulcamara, digitalis; three non-officinal, Sium lineare, Cicuta maculata, Conio-selinum canadense. All are more or less narcotic, and digitalis, dulcamara, and Sium lineare are also diuretic....... Without opium the combination is slightly aperient, promotes sleep, and, according to experience gained in dysentery and other diseases, heals ulceration of the mucous membrane." After some further interesting remarks, Mr. Kerr gives details of cases which were cured in his hands as well as in those of other practioners. They are too lengthy for quotation. So also are the details I have received from friends who have used the remedy, and who speak in the highest terms of its value, as having saved the lives of patients who seem to be fast sinking under other more usual remedies.

From these, I trust not too brief details, as well as from my own experience abroad, and in a recent case here, I feel bound to advocate and to publish this new remedy, while I also try to make the value of the ipecacuanha treatment, if possible, better known."[*]

**Miners-street, Eaton-Square, June, 1868.**

## PROF. LISTER'S TREATMENT OF WOUNDS AND ULCERS BY CARBOLIC ACID.

By J. R. Wylie, M.B., M.C., M.D.,

**Formerly Physician and Surgeon to the Remorguage Hospital, and Staff-Surgeon, Peninsular and Oriental Company. Alexandria. Egypt.**

**Although** separated by a great diatance from the mother country, yet being a constant reader of The Lancet and other medical journals, I see what is going on in the changes of and additions to our former theories and practice. Amongst other startling novelties my attention has been called to that introduced by Professor Lister, of the University of Glasgow, and, as one of his former pupils, I have taken some care in noting the effects of carbolic acid in cases to which it is applicable.

In September, 1867, I was called by a gentleman who had been suffering for about two months from abscess in the calf of his right leg, and his former medical attendant had adopted various plans of treatment, now using cold lotions to put it back, and then poulticing to bring the abscess to a head. When I saw it, the patient suffered much pain night and day, and wished to have an end put to his sufferings. I had just read in a number of The Lancet of Mr. Lister's new treatment of abscess, so I determined to use the carbolic acid according to the plan laid down by my late professor. I laid a piece of lint, soaked in a solution of one part of carbolic acid to four parts of boiled linseed oil, above the abscess, dipped the bistoury in the same solution slightly raised the lower margin of the lint, and opened the abscess. Immediately dropping the lint, I allowed the pus to ooze out, and then pushed in a plug soaked in the liquid between the lips of the wound, removed the dirty lint just as I slipped over it a fresh piece, and covered all with a piece of gutta-percha tissue. Next day I withdrew the plug, replaced it by a clean one, and on Sep. 26th, five days after the incision, the leg was quite well. I noticed that after the second day a very slight amount of clear serous fluid came out.

Case 2.—On Oct. 9th, a gentleman, aged twenty-eight, married, lately arrived in Batavia, sent for me to see his foot. I found the right foot very puffy in appearance, and it was very stiff, so much so that he could not move it in the smallest degree; and so great was the pain he suffered, both night and day, that he told me he was obliged to swallow as much as two or three hundred drops of laudanum daily. He described his case as follows:—Two years ago necessity compelled him to jump out at a window to the ground; he fancied the height from the ground would be about five feet, but he afterwards measured, and found it to be nearly eight feet. At all events, the result of the fall was that his right foot turned inwards, and got a severe wrench; his foot became painful and swelled up very much at the ankle-joint. He has visited England since where it did not annoy him much; but on his voyage out to the East again, the pain, swelling, and stiffness returned, and he has passed through all kinds of treatment. Such was the information he gave me. I at first recommended perfect rest, with the foot elevated, and relieved the bowels by an active purgative. I ordered a generous diet; and to relieve the immediate pain, applied a combination of camphor liniment, soap liniment, and tincture of arnica.

Oct. 10th.—The pain still there, but not so severe; describes the pain as shooting right through the ankle, from the external to the internal malleoli, and down to the sole of the foot.

12th.—Great pain and puffiness of the whole foot. I then ordered a poultice to the external malleolus.

13th.—Pain referred to a spot just below the external malleolus; apply poultice.

14th.—A small swelling of dark color to be seen at the spot above mentioned. I felt that it contained fluid, and ordered further application of a poultice.

15th.—There being to all appearance an abscess, I felt that considerable mischief must have been going on for a long time past in the joint. I then, with the patient's consent, called in consultation a gentleman of much experience in the Dutch Indian Army, who after manipulation and hearing the history of the case, recommended the actual cautery or amputation of the foot. And then I was left to act on my judgment; and as my patient would not submit to either treatment, it suddenly occurred to me to try the carbolic acid treatment of Professor Lister. On the 18th I laid open the abscess, in the same manner described in the last case and a large quantity of fetid blood and pus came out. I passed a probe in the direction of a straight line from the external to the internal malleoli to the extent of one and a half inches (the probe having been previously dipped in the carbolic acid and oil). I could feel no dead bone. I pushed a probe saturated in the mixture as far into the cavity, as I could, and dressed the foot externally, as before.

21st.—On the following day a quantity of pus came away. The pain almost gone. Put in the opening a fresh plug, and the second day after a little clear fluid came out, the cavity evidently closing from within outwards. Could only put in a very small plug; and to-day the plug is almost clean, or free from anything but the carbolic acid as when I put it in. Have dressed it simply.

22nd.—The wound is completely healed; the foot has resumed much of its natural shape, and can be moved in every direction without pain, but he can only bear his weight on the foot to a limited extent. To-day I succeeded in getting an answer to a question which I had put previously.

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[*] Mr. Kerr's remedy, prepared according to his formula, is to be had at Duncan and Flockhart's, chemists, Edinburgh, and Murdock's, chemist, Glasgow.

The patient stated he had "only a very slight touch of veneria." I at once acted on this, thinking it might confirm the improvement of the foot. I applied forthwith externally the common mercurial ointment, and ordered sarsaparilla and iodide of potassium internally, and the result has been most satisfactory.

November 28th.—He can walk with freedom has no pain whatever, wears a boot of the same size as that on the left foot, and says his foot is "all right now."

I feel satisfied at the above results of my treatment. True, sufficient time has not elapsed to enable me to pronounce the cure permanent, but I have done that which has thoroughly pleased my late patient, and which I trust may be offered to my professional brethren for their consideration. There is a question which suggests itself to me after the above case, and which might easily be entertained and experimented on by the operators in our large hospitals at home—viz., May the carbolic acid treatment not yet prove to be the best agent for the treatment of even extensive joint disease?

Batavia, Java, Nov. 1867.

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

> Nullaautem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

## GUY'S HOSPITAL.

### CASES OF STRANGULATED FEMORAL HERNIA.

(Under the care of Mr. John Birkett.)

The week rarely passes away, at the larger metropolitan hospitals, without one or more cases of strangulated hernia requiring to be relieved and reduced by a cutting operation. But it seldom happens that three cases of so much interest, and affording such sound practical lessons, occur within the period of a few hours as those related below. On the 6th and 7th of last February the cases were admitted, and all of them have been fully reported by Mr. W. E. Saunders. We shall briefly call attention to their chief characteristics, and then record their most striking features.

The first case is most remarkable as a recovery after *fifteen days'* continued vomiting. The accuracy of this fact may be relied upon, as Mr. Birkett took especial pains to discover if any erroneous statement was made, by inquiring of more than one individual, and upon several occasions. The prostration was such, when admitted, that life seemed nearly extinct; and it was several days before there appeared to be a hope of saving the patient. The state of the protruded bowel deserves particular attention, as affording an illustration of the condition of the viscus as affected by the constriction produced by the orifice of the sac and the tissues surrounding it *alone*, and not injured by manipulation, for attempts had never been made to reduce it by taxis.

The second case affords a striking example of the happy termination of a case of strangulated hernia when early division of the impediments to its reduction is accomplished without opening the hernial sac; and especially in a case of the kind here related, in which certain conditions of the tumour preclude the effectual application of the taxis.

The last case is an instance of the results of delaying the liberation of the bowel by a cutting operation until the injured bowel has sloughed, and it passes back into the peritoneal cavity, there to produce fatal mischief by allowing the escape of its contents within it.

Case 1. *Vomiting for fifteen days; adhesion of the bowel to the sac; great prostration; cure.*—A thin, small, delicate, married woman, forty-two years old, was admitted on account of a strangulated right femoral hernia, which had been observed for two or three months. She had never worn a truss. She was suckling an infant born eight months since. On admission she had been vomiting for *fifteen days*. The surface of the body was cold; the extremities and face blue; the pulse was just perceptible; she could scarcely articulate; the tongue dry and red; the abdomen tympanitic. There was a small tumour in the right groin. Although the patient had been visited by a medical man, *no attempt was made to return the rupture*. Mr. Birkett proceeded to reduce the bowel soon after admission. The patient was placed under chloroform, and an oblique incision was made along the upper and inner border of the tumour. The hernial sac and bowel were firmly united together, and great caution was required to avoid injuring the latter, although its thickened, leathery texture almost precluded the chance of doing so. The orifice of the sac was very small, and required division. Having with difficulty reduced the protruded intestine on acaccount of the firm adhesions, the wound was dressed with lint and plaster. Opium and stimuli were cautiously administered, and milk diet. Improvement in the general condition was remarkably slow; but on the fourth day after the operation she asked for some solid food, "because she felt so hungry." A little finely-cut chicken on bread was given her, which she enjoyed. In spite of extensive suppuration about the wound, retention of urine, great intestinal tympanitis, a little diarrhœa, a small bedsore, a severe attack of articular rheumatism after the wound was healed, she left the hospital well.

Case 2. *Vomiting nineteen hours; reduction of the hernia without opening the sac; speedy recovery.*—A healthy, married, prolific woman, aged forty-four years, had observed a right femoral rupture for about a year. She had never worn a truss. It frequently caused inconvenience by its descent, but went back after lying down. The day before admission she had felt more pain in the groin than usual, the tumour was larger, and she could not push it back. *Nineteen hours* before Mr. Birkett saw her she began to vomit. The femoral tumour was of moderate size, very movable, and the tissues covering it were healthy.

*Taxis had not been employed.* The patient was placed under the influence of chloroform; and Mr. Birkett tried to reduce the rupture by pressure. He failed, however, to do so; and then incised the integuments covering the fascia propria. Having now reached Gimbernat's ligament, he introduced the hernia bistoury, on the tip of the finger, beneath that structure, which was divided sufficiently only to enable him to reduce the protruded bowel by gentle pressure. This being effected, the wound was dressed with sutures, lint, and plaster. The tissues around the orifice and neck of the sac were very tight and firm; and, from the flask-shaped form of the sac and the great mobility of the tumour, Mr. Birkett attributed the impossibility of reducing the rupture without a cutting operation. This patient recovered without an untoward symptom, and left the hospital well in a month, wearing a truss.

Case 3.—*Vomiting four and a half days; bowel sloughed and retuned into the abdomen; sac incised and tissues sloughing; death.*—A large, fat, bronchitic, married woman, fifty-eight years old, had been the subject of a left femoral rupture for about eight months. She had never worn a truss. For several days before admission there had been a tumour, larger than usual, in the groin; and she had vomited constantly for *four days and a half.* She was admitted in a dying state. The integuments over and about the tumour were of a dusky-red color and œdematous. When an incision had been made through them, sero-purulent effusion flowed out. Mr. Birkett was unable to distinguish one structure from another, and that which seemed to be the peritoneal sac contained pus and feculent fluid. The hernia had been reduced. The patient survived this operation a few hours. Recourse to surgical assistance had been neglected until vomiting commenced, after which attempts to return the protrusion had been frequently made before admission. By after death examination the portion of small intestine which had been in the sac was seen to have sloughed and burst, although very little extravasation of the contents of the tube had taken place, and there was very slight peritonitis. The protruded bowel had been a portion of the upper part of the canal, about seven feet and a half below the duodenum—rather unusually high. Neither the pleuræ, lungs, heart, kidneys, nor liver were healthy.

### TWO CASES OF INCONTINENCE OF URINE FROM EARLIEST CHILDHOOD, CURED BY MECHANICAL DILATATION.

(Under the care of Dr. Braxton Hicks.)

A cause of incontinence of urine is indicated in the following cases which is not generally recognised. The treatment which Dr. Hicks applied was very successful, and we have no doubt that the record of it will be of great service to practitioners who have patients suffering from this very troublesome condition.

Case 1.—M. A——, about twenty-two years old, had suffered ever since she can remember from nocturnal incontinence of urine, and almost incessant desire to micturate during the day. Had been under a great amount of treatment. She was admitted into Guy's Hospital under one of the surgeons, who examined for stone, but found none, nor any disease of the bladder, but a contracted one. Dr. Hicks offered to take charge of her. He began first by injecting solution of morphia, which lessened the irritability to a great extent, so much so that she was free for two or three nights from her distress. However, no further progress was made, but rather retrocession. Dr. Hicks then ordered the bladder to be distended as much as possible by plain warm water. This was done by his clerk, Dr. Chas. Smith, very carefully, daily. Almost directly she derived benefit, and in the course of a week she was quite well. The treatment was kept up for a week more, and she went out. After three months the nocturnal incontinence returned, and she was readmitted; but the bladder became rather more irritable. Morphia was again used, but not acting as well as before, an injection of nitrate of silver, twenty grains to the ounce of water, was employed. This caused some pain after, but in a week she improved, with occasional trouble at night. She could hold half a pint of urine at a time in the day, but not so much at night. However, by an occasional injection of morphia she gradually regained the power of retention, and went out again free from her complaint. It was curious that for two or three days of the latter part of her treatment she was troubled with complete retention of urine; this, possibly, was of a nervous character.

Dr. Hicks remarked that the constant evacuation of urine permitted by some mothers to their children allowed the bladder to become so constantly empty, that after a time the muscular power of the sphincter was not sufficient to counteract the contractility of the organ. In recent cases, no doubt this could be voluntarily overcome by adults; but in old-standing cases, although we might do much by lessening the sensibility of the bladder, yet we might proceed at once to overcome its resistance by mechanical force, so that further treatment would not be required. This was strongly shown in the following case, which recently was under his care in Guy's Hospital.

Case 2.—The history was precisely similar to that of the last. The bladder was at once injected with water; it shortly held half a pint. The incontinence was rapidly cured; and the patient went out to service.

Both these girls had been unfit for service from their complaint. Dr. Hicks suggested the applicability of this treatment to both sexes, in cases with similar history; at any rate it would be harmless unless violence were used. He thought it was possible that in some of the cases there were congenitally small bladders, and these possibly might be more difficult to manage.

There is much more difficulty in treating the contracted state of the bladder in chronic cystitis. A great deal can, however, be effected by injections of various kinds, as was shown in the following instance:—

C. C——, aged twenty-six, had cystitis after delivery, which caused her great pain, and intense desire to void urine every half hour. Various remedies were tried: styptics and sedatives to the interior of the bladder. Nitrate of silver injection (thirty grains to the ounce) was the most beneficial. The distress it caused was considerable; but she preferred it, as giving most subsequent relief. Morphia solution was always left in afterwards; and also at other times, to lessen the sensitiveness occasionally; mechanical distension was employed, but it was found nearly impossible to inject beyond three ounces at any time. After two months she could retain urine for nearly three hours, when Dr. Hicks thought it might be possible to distend the bladder to a greater extent under chloroform. This was tried; but three ounces was the greatest quantity admitted. There was a good deal of irritation after, and she was not so well as before. After a week she could hold her water only for an hour and a quarter. Afterwards she improved, and could manage to retain urine for an hour and a half, when she left the hospital.

Whether the resistance of the bladder was simply from the thickened walls, or from this and inflammatory adhesions also, did not appear clear in the case. The resistance was very firm. She had, however, gained something altogether by the treatment; but not so much as she would have done had no attempt been made to distend the bladder.

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## WESTMINSTER HOSPITAL.

### TWO CASES IN WHICH FLEXIBLE BOUGIES WERE BROKEN IN THE URETHRA AND BLADDER DURING THE TREATMENT OF STRICTURE OF THE URETHRA.

(Under the care of Mr. Barnard Holt.)

In reference to the following cases, Mr. Holt remarked that similar ones were not at all uncommon; the same results had been frequently recorded where it had been necessary to resort to one or other kind of operation for the extraction of fragments of elastic catheters or bougies which were broken either in the urethra or bladder. He deprecated the use of such instruments, not only because of their danger, but because they were much less effective, gave more pain, and were passed with much greater difficulty than the highly polished solid bougie. All his patients who had been subjected to the operation by rupture were taught to pass solid bougies—an evidence of the facility with which the proceeding could be effected after the stricture had been properly treated. He admitted that the instruments now made were certainly an improvement upon those manufactured fifty years ago, but even these were liable to break if they had been used too often, or had become in the least degree cracked. He particularly deprecated the use of such instruments for the cure of organic stricture, and showed the students the impossibility of passing a small flexible bougie through an indurated stricture which would only admit a No. 1 silver catheter. Such bougies were so flexible that they bent upon themselves the instant any real obstruction was offered, and the increase in the size of the body of the bougie prevented its onward progress through the stricture. He particularly referred to two cases then under treatment: one a bad, organic, old, tight stricture, where the flexible bougie utterly failed, but where a No. 1 silver catheter could be introduced; and a second, where the patient was suffering from retention of urine, and where prolonged attempts had been made to pass a catheter immediately prior to Mr. Holt seeing him, the failure being more due to the want of skill on the part of the surgeon than to the density of the stricture, for Mr. Holt passed a No. 2 silver catheter without difficulty, and, after removing a considerable quantity of urine, he showed the students the ease with which a No. 1 gum bougie could be passed. He urged that in all such cases the elastic instrument gives no evidence of the calibre of the stricture; for it must be one or even two sizes less than the diameter of the narrowed canal to allow it to pass through, and this simply from the fact that it has not sufficient resisting power to overcome a dense obstruction. He was of opinion also, that whereas the introduction of a No. 1 silver instrument required the skill of an experienced surgeon, the passage of an elastic instrument required no experience whatever, and might be committed to the hands of the merest tyro in our profession. Mr. Holt stated that there were only two classes of cases where an elastic *catheter* was used with advantage—viz., one where the stricture was tortuous, the result of thickening at different sides of the urethra, and the other where it was advisable to retain the catheter for the purpose of temporarily enlarging the canal for the after-passage of another and more effective instrument. He pointed out the utter inutility of retaining a catheter in the bladder for the cure of organic stricture. No instrument, Mr. Holt said, is capable of enlarging a true organic stricture except by its distending power. A real stricture would never become enlarged by passing an instrument smaller than the diameter of the contraction, except as a temporary expedient. A retained catheter first excites and afterwards exhausts muscular irritability, and it is in this manner that it acts in apparently enlarging the canal; but so soon as the catheter is removed, and the muscular contractility is reproduced, so soon does the stricture return.

Case 1. *Stricture of eighteen years' duration; fistula in perineo; calculus impacted around broken bougie; operation for removal of calculus; subsequent operation for stricture by rupture; recovery.*—George G——, aged forty-one, a laborer, was admitted January 27th, 1868, suffering from stricture of the urethra and urinary fistula. He stated that fourteen years since, while undergoing gradual dilatation at a provincial hospital, a bougie was broken in his urethra, and about half of it was left remaining. Three days after the accident an operation was performed for his relief, and a fragment of the bougie, measuring three inches in length, was removed. On the following day another fragment, about an inch in length, was ejected while he was making water. The perineal incision readily healed up, and in six weeks after the operation he was enabled to leave the infirmary, passing his urine in a small stream. A fortnight after he had left another portion of bougie, about half an inch in length, came away from his urethra, and at this time he first became sensible that a fragment of it which still remained had shifted from its original position to a point nearer the glans. He was now unable to pass his catheter beyond this obstruction, against which he could distinctly hear the instrument grate. The stricture now speedily returned, and during the last fourteen years he has had great difficulty in passing his water, and frequent attacks of retention of urine. A fortnight previous to his admission into the Westminster Hospital he first noticed a small lump in his perineum, and a week afterwards a fistulous opening was established, through which almost all the urine was passed, a few drops only escaping by the penis. On introducing a catheter an obstruction is met with about five inches from the meatus, but exploration with a probe through the fistula fails to give positive evidence of a foreign body being located within the urethra. As the man, however, persisted that "there was a piece left behind," Mr. Holt determined to operate.

The patient being placed in the lithotomy position, a grooved staff was passed as far as it would go, and an incision was made upon its point; but although the urethra was freely opened, no fragment of bougie could be felt. A further examination, however, detected a hard body outside the urethra, and close to the ascending ramus of the ischium of the right side. This Mr. Holt cut into, and removed a calculus an inch and a half in length, in the centre of which was the fragment of the bougie. A small catheter could now be passed through the pouch in which the stone had been impacted into the bladder, but no instrument could be made to enter through the strictured portion of the canal. A small piece of oiled lint was placed in the wound, and the patient was sent to bed.

Feb. 12th.—Has not passed a good night, although his pain was not intense. Pulse 84; skin rather hot.

13th.—Better night. Pulse 80. Bowels relieved. Skin hot and dry. Urine passes entirely through the wound. Ordered effervescing mixture; ten grains of Dover's powder at bedtime.

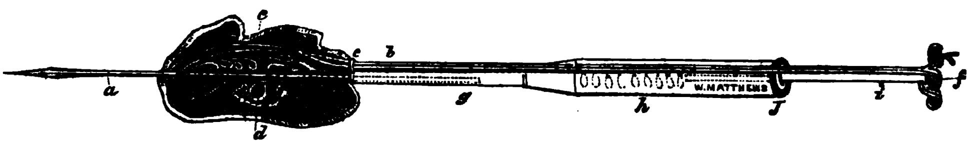
14th.—Slept very well. Pulse 96. The perineal wound being agglutinated, the patient suffered great pain in his efforts to pass water. Separation of the wound, and an opiate, relieved him.

15th.—Better. A very small quantity of urine has passed by the penis.

March 12th.—After having made, at different intervals of time, three ineffectual attempts to introduce a catheter, Mr. Holt succeeded to-day in passing a No. 1 silver catheter, which was retained for nineteen hours, and then replaced by one of a size larger, so that Mr. Holt could afterwards introduce his dilator.

On March 19th Mr. Holt split the stricture, and immediately afterwards passed No. 10 catheter with the greatest ease. The urine having been removed, the catheter was withdrawn; and the patient can now pass his water in a full stream, and but little comes through the fistula.

April 2nd.—The quantity of urine which escaped through the fistula has gradually diminished, and to-day for the first time he has made water without any portion of it passing through the perineal opening.



7th.—Passes his water in a full stream, and entirely through the penis. He leaves the hospital to-day, not having had a single unfavorable symptom since the stricture was ruptured by the dilator.

Case 2. *Stricture of the urethra of twelve years' duration, in which an elastic bougie was broken in the bladder. Extraction per urethram by the lithotrite.*—H. R—— consulted Mr. Holt, suffering from symptoms of stone in the bladder. He stated that three years since, while undergoing gradual dilatation for the relief of his stricture, the flexible bougie broke in the bladder during the attempt of the surgeon to remove it. Since that period he had suffered greatly from irritation of the bladder, and pain at the end of the penis. The introduction of a sound detected a rough body, not giving the exact sensation of a calculus, but evidently movable, and somewhat hard. Mr. Holt introduced a lithotrite, and succeeded in catching the fragment within the blades, and removed it from the bladder. It was found to be a portion of gutta-percha bougie, an inch and a half in length, and thoroughly coated with phosphatic calcareous deposit. The patient suffered but little from the operation, the irritation of the bladder almost immediately subsided, and in a fortnight he was perfectly well.

## KING'S COLLEGE HOSPITAL.

Mr. John Wood, of this hospital, in his late cases of operation for simple varicocele of the spermatic cord, has employed a small compressing instrument, acting by means of a spiral spring upon the wire or ligature enclosing the veins, in such a way as to exercise a steady, constant, and unintermitting pressure upon them. By the continuous ulcerative action thus produced, all that subsequent twisting or tightening up of the ligature upon the sensitive, ulcerated, and inflamed structures, which often gives so much pain to the patient as to amount to a repetition of the operation several times over, is altogether avoided; and the parts are cut through with less loss of time and pain to the patient, and inconvenience to the surgeon.

The instrument is very portable, light, and simple, and is adapted for application to the pin and wire commonly used by Mr. Wood, and now well known to the profession. It can also be applied as readily to a flexible ligature of silk, hemp, or silkworm's gut, or to a wire passed subcutaneously round the veins in the ordinary way.

The compressor consists of a small cylinder (*h*) containing in its interior a strong spiral spring, acting so as to protrude a piston rod (*i*), surmounted by a transverse bar or handle (*f*), upon which the wire or ligature is twisted or tied. At the opposite end of the cylinder is a socket tube (*g*), about three-fourths of an inch long, giving to the whole instrument the appearance and size of a small patent pencil-case. The tube is adapted to receive the cut end of a common harelip pin, when that is used to pass under the veins. Projecting from one side of its extreme end is a small ring (*e*) for the transmission of the wire or ligature (*b*) after which the latter is passed along the side of the cylinder to the handle at the end of the piston-rod (*f*), where it is secured. Before this is done the piston is set, with the spiral spring compressed and ready for action, by means of a small projection at *i*, which passes through a corresponding opening in the cap of the cylinder (*j*), and is there secured by a half turn given to the handle (*f*). When the ends of the ligature or wire are firmly secured at *f*, the spiral spring is set free to act by turning the handle of the piston back to its original position, so that the catch (*i*) is opposite to the opening at *j*. The spring can, if necessary, be changed to one more or less powerful by unscrewing the cap (*j*), and thus opening the cylider in which the spiral works quite loose and unattached. For very large cases a stronger spring or a larger instrument should be used. The whole apparatus is gilded to prevent the roughness and liability to break which sulphurisation or oxidation produces on polished silver, iron, or steel surfaces when in contact with fluid discharges, and which sometimes renders a harelip pin so difficult to withdraw after its work is done.

The accompanying figure shows the instrument as applied to the arrangement of pin and wire employed by Mr. Wood. A section also is given of the scrotum and spermatic cord, with the relative positions of the varicose veins (*c*), and the vas-deferens and spermatic artery (*d*), separated by the pin (*a*). The veins are enclosed and compressed between the pin and the wire loop, which is passed over the point of the pin at one end, and at the other through the ring of the compressor (*e*) as it emerges through the opposite puncture in the scrotum. Mr. Wood applies the apparatus in the following way. First, the skin over the cord is pinched up into a fold, and transfixed by a long slender needle, the eye of which carries a double wire of gilt copper. When the wire is drawn through, the loop is detached from the eye of the needle by a spring arrangement somewhat similar to that of the baiting needle used by fishermen. Then a sharp curve or bend is impressed upon the wire at the place where it passes through the tissues and into this bend the clump of varicose veins is pressed by the finger and thumb of the operator, when separating them from the vas deferens. The punctures in the skin, through which the wire emerges, will then be placed opposite to each other, and behind the level of the varicose veins, and through them a straight hare-lip pin can be passed across between the varicocele and the vas deferens, emerging at the identical punctures through which the wire passes. The loop end of the wire is then placed over the point of the pin, and both ends of the latter are cut off with a pair of pliers. One—the point end—is cut close to the skin, and the other at a distance sufficient to enable the socket tube of the compressor to be fitted on to it. The two ends of the wire are then passed through the ring at the end of the instrument, and secured firmly and tightly at the handle, *f*, while the spring is set by the catch at *i*. The latter is then set loose, and the action of the spring is suffered to tell upon the wire ligature, keeping it constantly taut, and always acting to produce progressive ulceration through the veins. This is usually accomplished in ten days or so, in cases not of unusual size, during which time the compressor is worn in a dependent position. No dressing is usually required, and hardly any discharge ensues when a metallic ligature is employed. The puncture opposite to the instrument usually heals over in a day or two. When the veins are sufficiently obliterated and divided, the pin and wire can be removed, either together or separately, as the case may require, and this is done easily, and with little pain or trouble. In using wire, care must be taken to avoid making kinks, which are apt to break off or cause obstruction in withdrawal. When the apparatus becomes caked, and stuck together by dried blood or discharge, a little warm water, previously used to soften the union, facilitates the removal.

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## UNIVERSITY COLLEGE HOSPITAL.

### CASE OF ACUTE RHEUMATISM: HIGH TEMPERATURE; SUDDEN DEATH; POST-MORTEM APPEARANCES.

(Under the care of Sir. Wm. Jenner.)

We have referred more than once lately to a class of cases of which the following, derived from notes kindly supplied by Mr. G. Vivian Poore, physician's assistant, is a good example.

Julia M——, aged seventeen, a general servant, admitted May 22nd, 1868. She states that on the 19th she felt pain in her right ankle. On the 20th she suffered in both ankles, as well as her knees and wrists, and complained of considerable thirst and headache. On the 21st, all the large joints, hips, knees, ankles, shoulders, elbows, and wrists, were affected, and she was brought to the hospital on the 22nd.

On admission she was suffering intense pain, cried out frequently, and complained of the weight of the bedclothes on her arms and knees. Patient was a strongly built girl, rather fat. Face flushed, and of a somewhat cyanotic tint; skin hot and moist. There was considerable heat about the joints, especially the knees, but no marked redness or enlargement. She cried out when touched on the limbs or trunk. Heart's apex impinging in normal position; no increase in cardiac dulness; no murmur. Tongue covered with a thick white fur; bowels confined since the 19th; has not vomited; pulse 120, of good volume; respirations 34; temperature (11.30 A.M.) 103°; urine free from albumen. Ordered to have the affected joints wrapped in cotton-wool covered with oil silk, and to have linseed poultices constantly applied to the region of the heart. Also to take at night a powder composed of four grains of calomel and ten grains of compound ipecacuanha powder and in the morning a draught containing four drachms of sulphate of magnesia, ten grains of carbonate of magnesia, fifteen minims of colchicum wine, ten minims of spirit of chloroform, and one ounce of peppermint-water. Diet: Strong beef-tea, two pints; milk, two pints. The temperature at 10 P.M. was 104·6°, and the pulse 120.

May 23rd.—Slept very badly, and was delirious the greater part of the night. Her bowels not having been opened by one P.M., she was ordered an injection of castor oil and gruel, which was speedily followed by a copious evacuation of the bowels. Her pulse being rather weaker than on the previous day, six ounces of sherry and four eggs were added to her diet, and in the evening it was thought advisable to increase the sherry to twelve ounces (one ounce every two hours). She was restless and delirious throughout the day, and these symptoms increasing towards evening, she was ordered twenty grains of bromide of potassium with ten minims of spirit of choloform, to be taken every second hour. She took three doses (at six, eight, and ten o'clock), and slept tolerably for two hours and a half. Temperature, ten A.M., 104·8°. Pulse 120. Respiration 50. Temperature, six P.M., 195·6°; nine P.M., 104°.

24th.—Restlessness and delirum more marked. Ordered ten minims of laudanum every two hours for six hours, making thirty minims in all. This had no perceptible effect upon her. Her pulse being weaker, she was ordered half an ounce of brandy every hour in lieu of the sherry. Her temperature gradually rose throughout the day; her delirium increased, and she died somewhat suddenly at half-past five on the morning of the 25th, with symptoms of extreme dyspnœa. For the last eighteen hours of her life she tossed about in bed, and seemed utterly to disregard pain. No cardiac murmur was at any time audible. She took her nourishment well, and never vomited. After the first day of her admission she passed her urine under her in bed. Temperature, ten A.M., 105.°. Pulse 112. Respiration 84. Temperature, seven, P.M, 107·4°. Pulse 132. Respiration 44. Temperature, eight P.M., 107°; eleven P.M., 107°.

*Autopsy, eleven hours after death.*—Weather hot; tint of face strongly cyanotic; extreme hypostatic congestion of the skin of back and loins; rigor mortis well marked. The pericardium contained about an ounce of slightly turbid yellow serosity. White patch on the anterior surface of the heart; one or two small patches of recent lymph on the right margin of the heart. On the parietal pericardium and on the back of the heart itself were several ecchymoses about the size of a pin's head.—Heart: Right side healthy. There was a slight ecchymosis on the corpus arantii of one of the aortic valves, and some slight roughening on the free margin of the mitral valve. The substance of the heart was of a firm consistence and natural color.—Lungs: Both lungs were extremely congested throughout, and more especially so at the bases posteriorly, where the tissue was almost airless. There were some old pleural adhesions on the right side.—Liver: Congested and breaking down rather too easily on pressure. Kidneys: Natural size, very firm, tough, and pale; the cortical substance cloudy and opaque; capsules separated with ease.—Spleen: Normal size, very soft, and pulpy.—Stomach: Extremely congested. The mucous membrane was thickened, soft, cloudy, and easily torn with the nail. In the submucous tissue of the pyloric half there were innumerable spots of ecchymosis, varying in size from a pin's head to a small pea, closely aggregated, and giving the appearance of one large ecchymosis as big as the palms of two hands—Brain: Veins of the pia mater rather over-full. One small cloudy patch on the pia mater over the left hemisphere, probably old. The ventricles contained about a normal amount of fluid.—All the big joints of the body were opened. Both knees contained about half an ounce of a yellowish-green, slightly turbid fluid, which under the microscope was found to contain pus corpuscles. The crucial ligaments, especially on the left side, were very hyperæmic, as was also the synovial membrane at the margin of the articulating cartilage of the femur. A similar fluid was found in the right elbow and in both hips; but no marked hyperæmia. In the left elbow and wrist and in both ankles no fluid was found; but each of these joints contained a small yellowish-green membrane, closely crumpled up, without attachments, and removable on the point of the knife, giving one the idea that it had resulted from the inspissation of a fluid like that found in the other joints. The right wrist was healthy.

## MIDDLESEX HOSPITAL.

### SCIRRHUS OF THE BREAST. THE DISEASE RECURRING IN THE GLAND AFTER AN OPERATION IN WHICH THE SCIRRHOUS TUMOUR WAS EXCISED WITHOUT REMOVING THE BREAST; SECOND OPERATION; RECOVERY.

(Under the care of Mr. George Lawson.)

We can best preface this case by quoting some clinical remarks which were made by Mr. Lawson upon it. "This case," he said, "is an illustration of the danger attending the removal of a scirrhous tumour, without taking away at the same time the breast from which it has sprung. This practice has lately been revived by some London and Continental surgeons, and, judging from the patients I have seen who have been subjected to it, the results are not such as would justify its continuance. Such a partial operation can only be practible in cases of lobular cancer, where the growth seems to start from the edge of the gland, and where the breast itself appears to be free from disease. It is, however, a mode of treatment to be strongly deprecated, as the disease is most certain to return in the breast, and in so active a form as to render a second operation very unfavorable. In this patient a small scirrhous tumour was excised from the edge of the breast, which from the patient's account was apparently free from the disease at the time of the operation; but in about two months the old pain returned, and the gland began rapidly to enlarge. For nearly twelve months the disease was allowed to progress, as the patient naturally dreaded a second operation when she had benefitted so little from the first. Her constant suffering, and the increasing size of the tumour, at last compelled her to seek advice, and she was admitted into the Middlesex Hospital. With as little delay as possible I removed the entire breast, a proceeding which would have promised better for the patient had it been adopted on the first operation."

Mary W——, aged fifty-four, was admitted into the Middlesex Hospital on March 23rd, 1868, suffering from a large cancer of the right breast.

*Family history.*—The second of a family of three. Her father died at thirty-eight—cause not known; her mother of old age, over eighty; her sister of typhus.

*Patient's history of herself.*—In December, 1866, she noticed a small lump on the inside of the right nipple. In the following May, when it had attained the size of a hen's egg, she came under treatment elsewhere; and the tumour was excised, but the breast left. The pain returned about two months after the operation, and the breast began to increase rapidly in size.

*State on admission.*—The breast is enormously enlarged; the nipple scabbed and retracted into a long scar across the under surface of the breast, where a cancerous tumour was removed a year ago. The skin is movable over all the parts beneath, but it is seamed from former distention, and is highly œdematous. No glands can be felt in the fat axilla.

*Progress and treatment.*—Mr. Lawson excised the whole breast, including the old cicatrix and a large portion of the skin which was involved in the disease. He also removed several hard and enlarged glands from the axilla. On making a section of the breast, the gland was found to be infiltrated with hard cancer, the morbid matter stretching freely into the surrounding parts. The wound was thoroughly dabbed over with a solution of chloride of zinc (forty grains to an ounce). The edges of the wound were then brought together with sutures. The patient made a good but a somewhat tedious recovery, and left the hospital on May 12th, with the wound almost healed.

## LONDON HOSPITAL.

### SEQUEL TO A CASE OF SYPHILITIC PARALYSIS; DEATH; AUTOPSY.

(Under the care of Dr. Ramskill.)

The patient, whose case we briefly recorded in the "Mirror" of a previous number died on June 7th. There is little of importance to add to that record. For the following facts we are indebted to Mr. George W. Mackenzie. Towards the end of April the patient's right optic disc was found to be swollen; veins large and irregular, and partly obscured; disc raised, reddish white, bright, and smoothed off into fundus; arteries large, and easily traceable; left disc only hastily caught; veins large, and appearances believed to be those of the right disc. From this time he became gradually worse, and mostly passed his motions and urine in bed. A few days before his death it was obvious that he did not move his left arm and leg so well as the right, but could move them a little when they were pinched.

*Autopsy.*—As had been diagnosed by Dr. Ramskill from the first, the cause of the patient's symptoms was clearly syphilis. There were in the hemispheres, or rather in the pia mater over them, one or two small nodules, of a yellowish color and tough consistence; there were also one or two on the tentorium cerebelli, and also in the left middle fossa of the skull, around the ganglion of the fifth pair of nerves. But the chief disease was at the base of the brain. It spread along the fissures, especially in the Sylvian fissures. The arteries in the interpeduncular space were also involved. The sixth nerve was the only one of the paralysed nerves which was embedded in the deposit. The third nerves were apparently equally entangled in the general material which occupied the space in which they were. The fifth nerve at its origin was normal; but its ganglion was diseased. The seventh nerve was at its origin normal; but the trunk was not followed into the petrous bone. Lying over the outer side of the brain, and covering the hinder part of the third left frontal convolution among other parts, there was a fibrous patch loosely adherent to the pia mater, and the brain beneath was quite free. This was whiter, tougher, and much more fibrous-looking than any of the deposits elsewhere. The large branches of the middle cerebral arteries were not blocked, although their coats were greatly diseased, being nodose here and there. Both corpora striata were very much softened; and this is noteworthy, as palsy of but one—the left—side of the body had been observed during life. However, the right corpus striatum was the one most softened. The liver contained one large and several smaller nodules, of a tough, dull-yellow color; the large mass was in the left lobe, near the porta. Nothing of importance was found in the other organs. The larnyx unfortunately, was not examined.

## GEELONG HOSPITAL, AUSTRALIA.

### CASE OF EXCISION OF THE UPPER JAW.

(Under the care of Dr. D. B. Reid.)

For the following notes we are indebted to Mr. John Douglas, clinical clerk:—

William B——, farm laborer, native of Chillwel, a tall thin young man, with pale complexion, grey eyes, and brown hair, was admitted July 15th, 1867, suffering from tumour of right upper jaw.

He states that, twelve months ago, he was thrown from a horse, and fell on the right side of his cheek and head. A week afterwards a small pimple formed in the center of his cheek, which has gradually grown, and swelled to an enormous size.

There is a large tumour occupying the site of the right upper maxillary bone. A solid irregular mass appears to grow outwards and downwards from the bone, distending the cheek. It is hard and botryoidal. The soft palate is pushed downwards, as if covering a tumour in this direction. Both nares are perfectly closed; there is no passage, and the air cannot be sniffed up nor expelled. He suffers no pain at all. There is no depression of the hard palate, and the skin is nowhere adherent. The zygomatic arch appears more prominent than on the left side. The patient is rather weak, but feels very well. On introducing the finger into the mouth, above and behind the soft palate, a mass, tough, lobulated, and apparently non-adherent, is found, blocking up the posterior nares, depressing the soft palate, and projecting into the pharynx. Ordered spoon diet—one pint of beef-tea, half a pint of milk, two ounces of arrowroot, one ounce of sugar; mutton chop, and four ounces of brandy.

*Operation.*—On the 14th of August, the patient being in good condition, the operation was performed. The man was placed in an arm-chair, an assistant supporting the head. The lines of incision were completely frozen by ether spray. On dissecting the face up in the usual way, a large fibrous tumour was found under the cheek, and the superior maxillary bone was found expanded; and it was clear that the disease commenced in the antrum. Incisions were made through the zygoma, the malar bone, and from the nose into the orbit, as well as from the nose into the mouth, by means of a Hey's saw. The hard palate was so thin that, with a scalpel, the cut made by the saw was easily prolonged as far as necessary. A few taps with the hammer readily started the bone; but it could not easily be removed in consequence of the deep attachments of the tumour. The soft palate was then dissected from the bone and from the tumour. The tumour, however, had contracted deeper and firm adhesions to the body of the sphenoid and to the pterygoid process of the right side. This dissection was very tedious and difficult. The last band of fibres, which went very near the carotid artery, was cut through by an écraseur. The whole of the right superior maxillary, the malar, the palate, and a small portion of the pterygoid process were thus removed together with a large lobulated fibrous tumour, which implicated them all. Chloroform was tried, but abandoned. Two bloodvessels were tied, and the ends cut off short. The hæmorrhage was copious. The inner incision was brought together at once, but the outer not till four hours after.

*Dissection.*—The tumour was perfectly white, lobulated, very tough and fibrous, and the mass weighed ten ounces. It resembled a sweatbread, was lobulated, and irregular. The antrum was enlarged, distended, and contained one lobe of the tumour, of the size and shape of a large walnut. It communicated with the mass outside the bone and in the cheek, and also with a large mass in the nasal cavity and back of the throat. The tumour extended not only into the back of the throat, but also had further attachments to the under surface of the body of the sphenoid bone. The tumour appeared to have originated in the antrum, and to have spread from there into the nasal cavities, which were completely occupied, back into the pharynx, and then outwards behind the pterygoid process to the cheek. On section, the tumour was beautifully white, exceedingly tough, and microscopically fibrous.

Aug. 27th.—The wound all but completely healed up, and the patient walking about the ward.

# Clinical Records

# OF

# THE PARIS HOSPITALS.

## DISEASES OBSERVED IN THE VARIOUS HOSPITALS OF PARIS DURING THE MONTH OF MAY LAST.

THE Société Médicale des Hôpitaux, exclusively composed of the nosocomial physicians of Paris, has adopted the useful practice of drawing up a general monthly report on the diseases which occur in the various hospitals of Paris. At the end of every month the physicians send in their respective reports on the cases observed in their wards, and M. Besnier, the talented secretary of the Society, sums up the whole in a general manner. The principal features presented by each class of diseases, the facts relating to their etiology, and the effects of the mode of treatment adopted, are carefully noted. We need not insist on the interest which attaches to this comparative study of the aspects of diseases in the various hospitals of Paris, and of the characters which they assume under the influence of individual peculiarities or of general circumstances, such as the weather, the season, &c. The practical results of such an inquiry, with regard to both the knowledge and the treatment of disease, are obvious. Besides this *coup d'œil d'ensemble* on the general aspects of the diseases observed, many rare and interesting cases are related in the reports. We shall not let such a rich fund of information accumulate without turning it to some account for the benefit of this department; and we therefore purpose, whenever M. Besnier's valuable reports are read at the Society, to cull all the interesting facts which they may contain.

During the month of May last the sanitary condition of Paris was compartively excellent. This was observed, not only in the hospitals, but in general practive. Influenza almost entirely disappeared; and the only diseases of the respiratory organs mentioned in the reports of the nosocomial physicians are bronchitis, and, particularly, pneumonia and pleurisy. M. Luys, who has charge of the large infirmary of Bicêtre, also makes the interesting remark that cerebral diseases, congestion, and hæmorrhage, which had created such great havoc among the aged in the winter season, disappeared entirely during the month of May.

*Diseases of the Respiratory Organs: Pneumonia* (Hôtel Dieu.)—A report from M. Bucquoy mentions eleven cases of pneumonia as having been under his care in May. Only one case ended in death. Appended to the report are the following interesting remarks, which show the general character assumed by the disease, and the progress that the restorative treatment is gradually making among the French physicians:—"If we except the patient who died on the third day after having been admitted for pneumonia in its third stage, all our cases of pneumonia have been remarkable for their hybrid character. In some, incipient rigor was wanting; others, were accompanied by repeated shivering; in others, again, there was no pain in the side. All were attended by more or less marked bronchitis, with a catarrhal condition of the other mucous membranes. Some were complicated by pleurisy. All the cases progressed rapidly towards a favorable termination; some, however, were followed by a relapse. In the majority of instances the course of the malady was shortened by the use of evacuating remedies, and particularly emetics. In some instances, the employment of a blister was necessary in order to obtain complete resolution. In all of the cases the administration of wine, and even alcohol, and food, was attended by beneficial results."

At the Hôpital Ste. Eugénie (exclusively devoted to the diseases of children) cases of pneumonia of the apex were noted in the wards of M. Barthez. In two of the cases convulsions, which lasted from three to four days, marked the outset of the disease. The nature of the malady became apparent on the fifth day only, and on the seventh resolution had already taken place. In another child the disease assumed the form of typhoid fever, the symptoms of which disappeared when pneumonia manifested its proper character on the fifth day. The peculiar interest of these cases in the study of infantile pneumonia is justly insisted upon by M. Besnier.

*Acute Phthisis.* (Hôpital Val de Grâce.)—M. Colin records several cases of galloping consumption, one of which ended in death, after having assumed in a striking manner the symptoms of typhoid fever. M. Colin insists on the beneficial action of digitalis, administered in strong doses, as a means of combating the fever and dyspnœa, and of suspending the fatal course of the disease, at least during a certain period of time.

*Pseudo-membranous Affections: Croup.*—The returns for the last month are not much in favor of tracheotomy. At the Hôpital des Enfants Malades, three cases were operated upon in M. Roger's wards. One, complicated with scarlatina and paralysis of the pharynx, was successful; the other two were cases of croup consecutive on measles, and terminated in death, brought on by broncho-pneumonia.

Same hospital, under the care of M. Labrie: Two cases, in one of which the operation was successful.

Ste. Eugénie (M. Bergeron): Four cases: operation performed in three. Two terminated in death; one cured. In the fourth case, which terminated successfully without tracheotomy having been performed, the oleo-resinous extract of cubeb had been administered.

Same hospital (M. Barthez): Ten cases of croup. In eight the operation was performed. Success in one case only.

*Rheumatic Affections.*—Still numerous. Two cases only deserve to be mentioned. In one, under the care of M. Cadet de Gassicourt, at Lariboisière, the patient, aged twenty-eight, died on the tenth day of the disease. The course of the malady had been marked by extreme anxiety, constant agitation, a feeling of general distress, intense fever, dyspnœa, with dryness of the skin and profuse transpiration alternately. On auscultation, no signs of alteration were discovered either in the lungs or heart. The intellectual powers were unimpaired. On a sudden delirium came on, with much agitation, and violent and disorderly movements of the limbs. Three hours afterwards the patient died. The autopsy revealed no change in the brain, but there was marked inflammation of the heart.

The other case was observed at the Hôtel Dieu, in M. Bucquoy's wards. It was one of blenorrhagic rheumatism, extending to the knees and instep. The discharge had existed four months, and rheumatism one month only.

*Eruptive Affections: Variola.*—The epidemic of small-pox, which had been so widespread and intense during the preceding month, manifestly abated in May. M. Cadet de Gassicourt mentions one case in which the patient, who was addicted to drinking, presented delirium and considerable agitation during the eruptive stage. These symptoms disappeared rapidly under the use of opium.

*Measles*, which had created such terrible havoc among the unfortunate inmates of the children's hospitals though still prevalent, had lost much of its intensity. The complications were less frequent and serious, and, consequently, the disease was less fatal. As a mark of the influence of the season, the complications had mostly ceased to be respiratory, and had become abdominal.

*Scarlatina.*—A severe though short epidemic of scarlatina was observed at the Val de Grâce by M. Colin among a number of soldiers who had all come from the same barracks. One case deserves to be related. The disease was attended by hæmaturia from its very outset. The urine then became more and more albuminous. Notwithstanding the employment of cold affusions, the pulse, the heat of the skin, and the stupor increased gradually till death supervened on the fifth day. On examination of the body after death the spleen was seen to be soft, and to have attained four times its ordinary size. There was intense hyperæmia of the kidneys, and the small intestines showed the appearances of psorenteria.

*Affections of the Digestive Organs.*—During the last month the influence of the warm season had already begun to make itself felt. With the disappearance of the diseases of the respiratory organs the affection of the alimentary canal were becoming of frequent occurrence. Cases of indigestion and diarrhœa formed a notable portion of the reports sent in; the frequency and intensity of these diseases being attributed to the premature appearance of the warm season. The month of May was unusually hot.

*Cholera and Choleriform Affections.* A few cases of cholera are mentioned in the report for May. Two occurred at Lariboisiére; one ended favorably, while the other terminated in death, having the well marked symptoms of the disease. At the Hôtel Dieu one case also was observed; but the patient was an aged woman, exhausted by care and misery. These cases, we may mention, are purely sporadic.

*Puerperal Affections.*—A report from M. Bourdon, of the Hôpital la Charité, mentions thirty four accouchements without any serious sequela. In one case, however, angeioleucitis of the breast supervened in a female who had slight ulceration of the nipple. Nothwithstanding the treatment, the skin became affected with white gangrene, which involved successively all the inflamed parts; and at the end of three days the skin of the whole breast had peeled off, except around the situation of the nipple. The large wound resulting from the fall of the slough healed speedily, through the remarkable vitality with which the breast is endowed, and through the tonic and restorative treatment adopted.

# Editorial.

## "THE MEDICAL PROFESSION."

"The Medical Profession" is a large subject, and must be a very interesting one, judging from the attention it is receiving not only from medical men, but from those outside our ranks. We would indeed be a powerful profession if we were not kept weak. The calling of Harvey, of Sydenham, of Arbuthnot, of Meade, of Fothergill, of Heberden, of Hunter, of Brodie, is clearly no disqualification for the highest friendships and the greatest influence. We are not unmindful of natural qualities, such as those of Arbuthnot, which made Swift say "he has more more wit than all of us [Swift, Pope, Gay, &c.], and as much humanity as wit." But after allowing for these, there is much in the studies of the medical profession, much in the amount of human nature under urgent conditions that dissipate affectation and gloss which comes under its notice, that would make it a most powerful profession, if somehow we were not kept narrow. It is a common remark, one made specially by Dr. Channing, that all professions have more or less a contracting effect upon those who practise them. And we must not maintain that medical men do not occasionally give illustration of the truth of this remark. Not only are we not so powerful socially, not so broad in our sympathies, as we might be, but we are often very limited in our sphere of duty. We do certain things, and perhaps do them very well; but we do nothing else. We are good surgeons, or good physicians, or good obstetricians, or good ophthalmists; but nothing else. Or we are good sound general practitioners that deal out shrewd advice in the common exigencies of health; but we are good for nothing in particular, and we decline duties that would greatly vary the monotony of common practice, and which there is no reason in the nature of things for our not discharging. There must be some reason for all this. This narrowness is not in the study of medicine itself, which is a large and broad one, suggestive of sympathies and relations of all kinds. The most distinguished members of our profession have not been characterised by this narrowness. Whence, then, does it come? To what are we to attribute the sharp limitations of our knowledge and function, and, correspondingly, of our influence in society? These are grave questions. Knowledge is growing "from more to more" all about us, and we should set ourselves right for catching the contagion of this growth.

At once the best cure and the best explanation of any narrowness in the medical profession is the study of the history of the profession itself. This may be very pleasantly and easily carried out just now by reading a little book which lies before us by Dr. Mapother of Dublin, to which the "First Carmichael Prize" has been awarded by the College of Surgeons of Ireland. It is entitled "The Medical Profession," and includes within its two hundred pages a rare amount of most valuable information touching the various bodies and departments of the profession, giving the history of every school and licensing board and its present condition, and containing most valuable suggestions for the better education and organisation of the profession. It gives a very good outline of the position of medical officers in the services of the State, and of their mode of admission thereto. It is impossible to read such a book without being greatly impressed with the things that really hinder the greatness of medicine as a science, and consequently its influence as a profession. It is not that Dr. Mapother contributes much really new light on the state or history of the medical body, but he gathers light from many sources, and, one way or other touches upon all the causes of our present weakness as a profession, and the remedies for it.

It is not our design to review Dr. Mapother's book, which we take for granted will find its way into the hands of medical men generally as a book of reference and full of suggestion. We only use it. It is interesting to know the conclusions at which an essayist of such varied information arrives as to the medical profession. We can do little more than indicate the principal of these conclusions. Dr. Mapother thinks that the importance of the profession of medicine is not fully recognised. And most of us will agree with him in this. He goes on to consider the causes which have contributed to degrade the profession from the position it should occupy. Foremost amongst these he places the fact that the public have only imperfect means of judging the merits of medical men. Then he specifies the influence of imperfect rewards upon medical success, complaining that the great ones of our profession are not raised to elevated positions in the State, and that we are so inadequately represented in Parliament. He dwells especially on the want of unity in modern medicine, contrasting, as he says, with that of Hippocrates, Galen, and Celsus who treated of all diseases and accidents alike, and whose practice of medicine and surgery was one indivisible art; though he is forced to admit that even Hippocrates had some notion of specialism, inasmuch as his oath has the following item: "Cutting for stone I will not meddle with, but leave it to the operators in that way." Dr. Mapother observes that the chartering of so many bodies has tended to divide most unnaturally the healing art into the two branches, physic and surgery. He eulogises in high terms those—especially Lawrence and his own hero Carmichael—who advocated the reunion of these distinct corporations. Amongst the causes which tend to keep down the influence of the profession, he alludes to the imperfect education and examination of its members.

Dr. Mapother has really written an elaborate essay on the medical profession, the details of which must make his book a pleasant possession to every qualified medical man, either in private practice or in the public services. And his conclusion is just that which we arrived at years ago—that there are far too many corporations; that education needs to be at once more special and more inclusive; and that examinations need to be demonstrative and practical. Did we not know that these truths have been set forth as clearly as words can express them by the wise men of former generations, we should think that they would be acted on immediately. If we have a Medical Council now, and two or three medico-political societies, we have also the significant fact that, despite all these agencies, all the corporations exist as they did before in their contracted individuality. The competition in the medical licensing bodies is in the mouth of every statesman who speaks on medical education; it is reiterated in every newspaper. But it continues. The last number of the *Observer* contains an able exposition of this state of matters founded on Mr. Lowe's recent speech. Referring to the only double qualification to be had—that of the two Edinburgh Colleges,—our contemporary says "the student can in Scotland take out his twofold diploma at a cost of £16, whilst for the like diplomas in London he must pay £37 15*s*." If anything would move the examining bodies to concentrate and perfect themselves, it would be such a statement as that of our contemporary—that some are beginning to think that examinations may be dispensed with altogether. The present ones are so lightly esteemed by the State, as Dr. Mapother shows that candidates for the public services are examined over again.

We are of the number of those who look for the raising of the profession not so much to elevation to the Peerage nor direct representation in Parliament, but to a better education, both primary and professional, and to some efficient and crucial means of excluding from the profession all who have not had such an education.

## INFLUENCE OF NERVOUS EXCITATION ON THE GLANDS.

Whilst great attention has for many years been directed to the mode in which the nerves distributed to muscle terminate, and endless disquisitions have appeared on the methods by which their functional activity may be excited or modified, comparatively few investigations have been made on the ultimate ramifications of the nerves distributed to glands, or on the effects of nervous excitation on the amount and quality of the secretions they severally produce. The recent extended and careful researches of Pflüger, Schiff, and Heidenhain on the salivary glands, however, which may be regarded as a continuation of those previously made by Bernard and Ludwig, bid fair to take away this reproach, and to give a clearer insight into this obscure domain of physiology. Of all the glandular organs, none are so well adapted for experimental investigation as the submaxillary and the parotid glands. Their superficial position—permitting them to be easily exposed with serious injury being inflicted on the animal;—their limited and well-known nervous supply, and the facility with which by the introduction of canulæ into their excretory ducts variations in secretory activity consequent on excitation of their nerves may be recognised,—are all circumstances which contrast favorably with the difficulties encountered in examining such organs as the liver or pancreas, and have led to the selection of the former glands for experiment by the later observers. A few years ago it was generally admitted that the influnce of the nervous system upon a gland was not so much exercised upon the process of secretion, which was supposed to proceed continuously, as upon the excretory act, the induced contraction of the muscular walls of the ducts being supposed to express the secretion which had accumulated in their interior. The observations of Stilling and Ludwig rendered some modification of this view requisite, showing as they did the great influence the nerves possessed over the bloodvessels, augmenting their calibre, and increasing the flow of blood through them and the pressure under which it moved. They erred, however, in attributing the dilatation observed in the arteries to a remora of the blood consequent on contraction of the small veins. This mistake was corrected by the observations of Schiff and Bernard, who showed that the veins, so far from contracting when the cerebro-spinal nerves were irritated, dilated, conveyed a fuller current of blood (which assumed a bright scarlet tint), and sometimes pulsated, whilst the pressure of the blood in their interior was also decidedly increased. Opposite effects were shown to be produced by irritating the sympathetic, whilst similar effects followed the paralysis of that nerve. It was therefore admitted that the contraction of the vessels was under the control of the sympathetic nerve, whilst the cerebro-spinal nerves in certain instances could effect an *active dilatation* of the vessels; and the differences in the quantity of the saliva secreted were believed to be due to variations in the pressure of the blood in the vessels. Eckhard, however, soon showed that, besides a difference in the quantity, there was a marked difference in the *quality* of the fluid secreted by the submaxillary gland, according to whether the chorda tympani or the sympathetic nerves were irritated: in the former case the fluid being thin and watery; in the latter thick, viscid, and slightly turbid, from the presence of numerous particles of protoplasm possessing the power of spontaneous movement. The parotid was less easy to experiment upon, and some difference of opinion existed in reference to it, Eckhard believing that in the sheep it secreted continuously, and was uninfluenced by either the cerebro-spinal or sympathetic nerves, whilst Von Wittich held that the activity of the gland could be energetically roused through the sympathetic. The subject was taken up by Pflüger at this point, by whom the salivary glands were subjected to most careful microscopic scrutiny, especially in reference to the mode of termination of the nerves. He ascertained the important fact that the nerves are in direct continuity with the gland-tissue, through the intermediation of the secreting cells which line the alveoli and the ducts, and that fine branches, apparently both of the cerebro-spinal nerves and of the sympathic, may be traced into the nuclei of the cells, sometimes being fine and singly contoured, sometimes varicose, and sometimes ending in a large multicaudate ganglion cell, the branches of which enter the secreting cells, and terminate, like the former, in the nuclei, which in fact appear as clavate expansions or terminations of the nervous fibres. The observations of Pflüger have been interestingly supplemented by those of Heidenhain, who believes he has been able to show that in man and the dog, though not in the rabbit, two forms of secreting cells are found in the alveoli—one in which the cells are soft, ill-defined masses of protoplasm or germinal matter, with round nuclei and finely granular contents; the other in which the cells have a well-marked cell-wall, transparent contents, not easily tinted with carmine, and flattened nuclei. The former appear to produce watery saliva, containing ptyalin, the latter a secretion containing a large proportion of mucous. The results of prolonged irritation applied either to the sympathetic or to the chorda tympani caused an increase in the quantity of the saliva, though in the former instance it contained a larger proportion of the amœboid particles and mucin, and in the latter saliva of a more watery character, with ptyalin. As a general result of his experiments, he considers there is strong evidence that irritation of certain nerves may induce lively cell-formation and metamorphosis. Surely these facts are replete with interest, and lead us a step nearer to the comprehension of the intimate connexion that exists between the nervous system and all parts of the organic framework. And we can no longer be surprised at the powerful influence exerted by the nerves over glands; as instances of which the alterations that occur under various conditions in the secretion of the mammary gland during lactation, in the functions of the liver and the kidneys, may be referred to, since it may reasonably be concluded that arrangements analogous, if not identical, with those just described exist in all these glands.

In conclusion, we may just remark that Schiff's observations on the nervous supply of the parotid, which has been much disputed, are of great interest. He finds it is derived in part from the seventh, through its temporo- and cervico-facial branches; in part from the auriculo-temporal of the fifth, and the auricular branch of the cervical plexus; and, lastly, from the sympathetic. Its most important branches are probably derived from the facial through the lesser superficial petrosal nerve, which enters the otic ganglion, and is distributed by the branches of that ganglion to the gland. These excite it to action, or constitute its motor branches. It would of course be a fact of the greatest importance if it could be established that particular nerves were distributed to special forms of cells; but at present there is no evidence to warrant this conclusion.

## FUNCTIONS OF THE PANCREAS.

Notwithstanding the numerous and careful investigations that have of late years been directed to the elucidation of the functions of the Pancreas, the recent researches of Kühne, Fudakowski, and of our own countryman Dr. M. Foster, show that much still remains to be learned. It is now very generally admitted that the pancreatic juice acts upon the three important alimentary groups included under the heads of the Albuminous, the Oleaginous, and the Farinaceous. It converts all the albuminous or proteic compounds into a subtance which is not coagulated at the boiling temperature, and possesses a high degree of diffusibility, termed peptone; it emulsifies fat more perfectly than any other secretion in the body; and, lastly, it exerts an amylolytic power, as Dr. Foster terms it, over starch, rapidly converting it into grape sugar or glucose. What is it that enables this clear, viscid, transparent fluid to effect such wonderful changes? Is the active agent single, or is it multiple? And what is the nature of the action in each instance? Is is analogous to the agency of a ferment—a catalytic action,—so that a minute portion of the juice will alter an indefinite quantity of the substance acted on; or is it a simple case of chemical combination?

Some progress has been made in replying to these questions. In the first place, we may refer to Kühne's observations. It is generally stated in the text-books that leucin and tyrosin, substances that are well known to result from the decomposition of albuminous compounds, are constituents of the pancreatic tissue, and are eliminated in the secretion. Kühne shows that they probably result from the action of the juice on peptone which has already been formed from albumen or other proteic compound. This is a matter of consideraable interest; for it shows that already, while the food is still in the intestinal canal, a portion of it undergoes decomposition—a true luxus-consumption—into substances that are ordinarily regarded as belonging to the products of regressive metamorphosis. And it is also remarkable that the active agent of the pancreatic juice can effect, at a temperature of 100°F., the same changes in albumen as may be accomplished without the body by the addition of an acid and the application of a boiling temperature. It is probable that the substance termed Pancreatine is that to which this power is to be attributed. We may just add the results of one experiment: 100 parts of dry fibrin yielded 61 parts of peptone, 3·86 of tyrosin, 9·1 of leucin, and 26 parts of unknown substances, amongst which were anilin-like bodies, giving a red or violet color with chlorine, water, or chloride of calcium.

Dr. Foster's researches have been chiefly directed to the determination of the nature of the substance by which starch is converted into sugar. This amylolytic power, though commonly stated to be possessed by all albuminoid compounds at a certain stage of decomposition, is in reality limited to certain fluids; and these manifest it as well when fresh as during any subsequent stage of decomposition. Thus human blister-fluid, the vitellin of the fowl's egg, and the serum of sheep's blood are powerless upon starch when fresh, and equally powerless in all stages of decomposition. But, from Dr. Foster's investigations, it seems doubtful whether this remarkable power is really associated with any of the ordinary forms of albumen; it is certainly not with pancreatine, since, as he has shown, if pancreatic juice or infusion of pancreas be saturated with sulphate of magnesium and filtered, the whole of the so-called pancreatine is retained on the filter, and yet the fluid which has passed through the filter will be found to have lost a fraction only of its amylolytic power. In the same manner it may be shown, in the case of saliva, that the converting power depends neither on the mucus nor on the globulin, since it retains its energy when freed from both of these substances. The ferment, therefore, seems to be something quite separate and distinct from the albuminous compounds. And this view is materially corroborated by the facts that the amylolytic power is by no means commensurate with the quantity of proteids present, and that the presence of neutral salts, even to saturation of the solution, has no appreciable effect. It is remarkable, however, that it should always occur in fluids containing proteic or albuminous compounds, and that it should lose its powers at about the same temperature as effects the coagulation of the various albuminous compounds. It has been proved by Dr. Foster that in the case of saliva, and therefore we may with all probability assume in the case of the pancreatic juice, the ferment is *not* consumed during its action on starch; which is fully borne out by the well-known fact that a definite quantity of amylolytic fluid will sooner or later convert any quantity of starch into sugar. Dr. Foster has made a few additional investigations on the distribution of the amylolytic ferment, and has found it to exist in the tissue of the liver, in the pleural and peritoneal fluids, and in the blood and urine. He conceives that the disease *diabetes* is due, not to any excess, but rather to some modified action of ferment; since the amount of ferment passed in the urine per diem in six cases in which he examined it in no way exceeded that passed by persons in health, and, further, the blood was not found to be more amylolytic than in health. These experiments we hold to be in the right direction for affording an explanation of this singular disease, and we trust Dr. Foster will be induced to continue them.

## THE BANQUET TO SIR WILLIAM JENNER.

The honor lately accorded by the Sovereign to Sir William Jenner was endorsed on Thursday last by his friends and pupils, who met together in very large numbers to congratulate the new Baronet upon a distinction which the profession universally will think well merited. Happy in the possession of a name already associated with world-wide benefaction, Sir William Jenner has yet no need to rest his claim for recognition in the ranks of science upon any fortuitous coincidence of this kind. His reputation is his own. The fight which he has fought has been indeed a noble one—honorable to himself as having conquered difficulties of no ordinary kind, and honorable to the profession of which he is so respected a member. For there is no small satisfaction to be derived from the proof which his career affords that, even in a profession which offers so few prizes as that of medicine, untiring industry, honesty of purpose, and scientific attainment can command a recognition which is the more grateful as it is a tribute to personal worth and owes nothing to political expediency. Sir William Jenner is in the prime of life—in the very zenith of his professional career. Happily then, in referring to his claims upon the respect of his brethren, and their united congratulations, we do not need to call up the rememberance of long past services. His work is fresh in the recollection of us all. His contributions to science are part of the accepted knowledge of the day. To him we owe largely the certainty with which we can distinguish between two forms of fever that were formerly merged in one common term, by which they were designated, but not identified. Out of this distinction, due to his sagacity, there has arisen an advantage to sanitary science the importance of which it is difficult to exaggerate. The pathological conditions thus clearly discerned and separated have been a starting point from which later observers have deduced the truth respecting the etiology of the diseases, and with the knowledge of the cause the means of prevention have become a part of our everyday experience. Sir William's investigation of the condition called rickets is a model of scientific research, and a lesson in the utilisation of the experience which is to be derived from association with a hospital like that for sick children, with which he was formerly connected. But it is as a teacher of clinical medicine that his reputation will live perhaps the longest in the rememberance of those who were fortunate enough to be his pupils.

Clear, precise, eminently practical, homely in description, and judiciously dogmatic, Sir William Jenner's clinique was a brilliant example of that form of teaching which is the most valuable of all in its power of influencing the minds of students.

It must be felt as no light advantage that her Majesty the Queen should enjoy the services of a physician at once so able, so honest, and—if we may be pardoned for using the expression—so little of a courtier as Sir William Jenner. That he ably fills this somewhat trying position is proved by the mark of distinction which has been allotted to him. The profession will unite with us in hoping that her Majesty may continue to retain the advantage of his sound advice, and that the good wishes so warmly accorded to Sir William Jenner at the meeting on Thursday may be fulfilled in a long and bright career.

## MARRIAGE IN THE ARMY.

There is probably no more difficult subject to deal with satisfactorily than that of marriage in the Army. The conclusion at which different persons arrive depends very much upon the aspect from which it is regarded.

There are the moral, medical, and financial points of view. As far as the first is concerned, we presume there can be little doubt that early marriage imposes a decided barrier to habits of immorality, and that, on the other hand, the celibate lives which a large proportion of our soldiers have to lead, entail much that is evil, morally and physically.

The moralist will urge that, however much the nation may be justified in enlisting men for a long periods of service, it has no right to bar the road against marriage, since such a restriction opens the door to profligacy and disease. And there is much to be said from the medical and physiological point of view on the same side; still, there is likewise a great deal to be urged on the other. A soldier, when he marries, too often exposes his wife and children to penury, disease, and grave discomfort. The mortality arising from diseases of nutrition and development among the women and children is large; and we all know that in tropical climates—and our Indian possessions absorb a very large portion of our army—the amount of disease and mortality among them is very lamentable. When a regiment embarks for active service, women and children have to be left behind. To go no further than the occasion of the late campaign in Abyssinia, the women and children of the English regiments proceeding from Bombay had to be left behind, and, we have been told, with grevious results as regards the unfortunate women and children.

The financier and the taxpayer would scarcely consent to supply the necessary funds for lodging all the married soldiers' families properly, and for providing for their transport to different stations. As it is, with the very limited number of married people in a regiment, these matters are not attended to in the way they should be; but if a large proportion of the men composing a corps were married, the expenses would be enormous.

Among many other reasons, we perceive in this matter of marriage a very strong one in favor of short periods of military service. If our colonies protected themselves, and if our Indian army were again a separate and distinct establishment, we can see no reason why soldiers should have to be actually present and serving in the army beyond five or six years, at the end of which time they could be placed on a reserved list, and retained by some small sum, as to render them liable to be called upon when required.

By this means we should have a large number of young men passing through the service, which would have the effect of popularising it, and of affording at the same time a strong military reserve on which the nation might fall back; and, secondly, the men would be enabled to marry after they leave the army at the same ages people do in civil life; and in order to fit them for their duties as citizens, soldiers should have an opportunity of learning some trade in the army by being employed, as far as practicable, in supplying its wants, repairing the barracks, &c.

We have been led to these remarks by the perusal of a little pamphlet on Army Marriages, published at Belfast, which contains a good deal of information, statistical and otherwise, connected with our own and various continental armies.

# Medical Annotations.

"Ne quid nimis."

### AMERICAN MEDICAL ASSOCIATION.

The nineteenth annual meeting of this Association commenced on the 5th of May, and lasted four days. The Association met at Washington, and received marked courtesies from the President, from Chief Justice Chase, from General Grant, and other distinguished public men. On the 5th of May the members visited the Executive mansion, and were received by the President, Secretary Seward, and others. Whether we look at the tone of the feeling of the members, or the subjects discussed, or the character of the discussion, we must regard the Association as worthily upholding the honor and interests of the profession in the United States.

The question of female physicians gave rise to a very animated discussion, terminated by the indefinite postponement of the subject. The great champion of the rights of ladies was Dr. Henry I. Bowditch. A noticeable feature is the scientific prosecution of subjects by committees, which report annually, and are often reappointed: such as a Committee on Clinical Thermometry in Diphtheria; on Operations for Harelip; on the Ligation of Arteries; on Medical Education; on Medical Literature, &c. There is a Committee of Medical Ethics, to which charges against members are referred. The important subject of medical education, is still *sub judice*, the Association having, by motion, referred the whole matter to the faculties of the regular Medical Colleges of the nation, pledging itself to adopt and enforce any system or plan that may be agreed upon by two-thirds of all recognised Medical Colleges. The case of Dr. Homberger illustrates the feeling of the American Association as to specialists who advertise in the public prints. The question was, whether he should be expelled, or allowed to resign. By a decided vote he was ordered to be expelled. A committee is appointed to report next year on an annual Register of the regular Profession in the United States, and, meantime, to take necessary measures to carry the plan into effect. Another committee is appointed to report on the best means of providing a fund for the relief of widows and orphans. The following resolution is of special interest just now: "That a committee of three be appointed by the chair to take into consideration the subject of the appointment of a commissioner in each judicial district, whose duty it shall be to aid in the examination of witnesses in every trial involving medico-legal testimony, and to report at the next meeting of the Association." Another motion expressing the feeling of the Association in favor of well-trained nurses only in hospitals, and of institutions for their training, was referred to a committee. The President elect is Dr. Baldwin, of Alabama, who, adverting to the late unfortunate dissensions, trusted that henceforth harmony and goodwill would prevail. The retiring President at this stage corrected an impression that during the war the Medical Association had passed a resolution recommending that medicines and surgical instruments should be made contraband of war. No such resolution had even been introduced. The Section on Physiology made very flattering mention of a contribution by Dr. Joseph Jones, on Albinism in the Negro Race. A letter of sympathy to Professor Ehrenberg of Berlin, who is blind, was authorised. In the Section on Surgery a case was related strikingly illustrating the apparently good effects of arsenic in epithelioma. Dr. Elsberg, of New York, read a paper on the Treatment of Syphilis by Hypodermic Injections. The paper is to be published, but the discussion was not convincing as to the superiority of this mode of administering mercury. Relapse seems common after it. In the Section on Materia Medica a resolution was passed urging on Congress the cultivation of the chinchona tree in the United States, in consequence of the steady and rapid decrease of the supply from South America.

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### QUACK DOCTORS.

On the 18th May an inquest was held before Mr. Humphreys on the body of a married woman aged thirty-three, who had fallen a victim to the ignorance of a quack French herbalist named Denase. It appeared from the evidence adduced that the deceased, being unwell, had applied to Denase on Monday week, who gave her two bottles of medicine and a large number of pills. She was told to take half a glassful from one bottle every half-hour, and from the other every hour; and he gave her twenty-six pills to take at frequent intervals during the night. By six o'clock on Tuesday morning she had taken the two bottles of physic (thirty-three doses) and the twenty-six pills. The effect of this extraordinary physicing was to produce a miscarriage, from the exhaustion attending which she died. The quack was called, and stated that the deceased was suffering from inflammation of the chest and lungs. He then said he had given her some vegetable medicine, the chief ingredients of which were lobelia and cayenne. He never asked her whether she was *enceinte*, but if he had known it he should have adopted the same treatment. A post-mortem examination was made by Mr. Gant, who stated that there was no trace whatever of any inflammation or any disease. There had been a miscarriage. The medicine which had been given was the cause of the miscarriage, and the miscarriage was the cause of death. The Coroner briefly summed up, pointing out the difference between the wrong administration of medicines from sheer ignorance and their administration with criminal intent. He considered that Denase had destroyed the life of the deceased through gross ignorance, and without any sinister design. The jury returned the following verdict: "That the deceased died from exhaustion resulting from a miscarriage which had been brought on by medicine taken inadvertently that had been ignorantly prescribed for her by an unqualified practitioner; and the jury desire to express their regret that ignorant and unqualified practitioners are allowed to prescribe for patients to the danger of life."

What have the advocates of what is called "free trade in physic" to say to such a case as this? Are they prepared to sanction the wholesale destruction of life which there is every reason to believe is carried on by quack doctors of every kind? If so, their folly is only exceeded by their inhumanity. Is there a country in Europe in which such proceedings as those recorded above would be tolerated? We believe not. And yet there are a set of persons in this country who, when the claims of the public to protection from ignorant and unauthorised practitioners are urged upon the Legislature, talk glibly of the "liberty of the subject" and the arbitrary conduct of "the doctors." It is useless to argue with such persons as these; but by the great majority of persons who can think, the present state of things is viewed with disapprobation and alarm. Increased powers must be given to the Medical Council: registration must be made imperative and any person practising physic who is not on the Register should be subjected to summary punishment.

### THE NEW POISONS BILL.

THE principal of the new Poisons Bill which has passed the House of Lords is different from that which has generally been thought most likely to receive the approval of the Legislature. It has hitherto been imagined by many that some compulsory measure in regard to the keeping of all the more powerful, or the especially dangerous, medicines, would be the best means to guard against accident. The promoters of the new Bill, however, have gone upon the assumption that it is much better to rely upon enhanced intelligence on the part of dispensers as a whole. They have sought to debar persons from handling dangerous drugs until they have passed through such an ordeal as shall guarantee their being properly educated in pharmacy generally, and therefore presumably possessed of those qualities of care and forethought which are secured by scientific training. It was not until Government recognised this principle, indeed, that the commencement of a satisfactory solution of the matter was possible. At the same time, whilst we allow that at length a most proper course has been taken, we wish that the special value and general importance of incidental securities against mistakes may not be lost sight of. The adoption of some pretty uniform system in regard to the keeping and dispensing of dangerous remedies may be attended with some difficulty or inconvenience; but this must not be allowed to override considerations of public safety. Under one of the clauses in the new Bill, power is given to the Pharmaceutical Society, with the countenance of the Privy Council, to make such minor rules and arrangements as shall seem desirable to defeat the likelihood of accident. We therefore hope that the Society will set to work to bring about a general agreement amongst druggists as to the best mode of storing, keeping, and dispensing of poisons; and we are sure that the profession will readily adopt any satisfactory plan. We may say a word on one or two points. A greater distinction can be made between the bottle which contains the medicine "to be taken," and that to be "used externally." In some measure this is effected; but it should be possible to attain to almost entire uniformity. We think the general use of the slipper bottle for embrocations, for example, would be a good step. Even in the dark, accident would be prevented by the shape of the bottle. Then, again, with regard to the keeping of drugs in dispensaries. Amongst the better class of chemists, poisons are placed often under lock and key, in a separate case or part of the dispensary; and we think that this might be more generally done. It has been found that when poisons are isolated, attention is taken from the label; the mere keeping of the poison in a special spot is apt to be regarded as a great safeguard in itself, and dispensers are not so careful as they should be in referring to the name on the bottle. Inattention to the label has led to the confusion of strychnine and morphia, for instance. No doubt this is true, but there is not the slightest excuse for the neglect, which furnishes no argument against the isolation of poisons, as has been suggested. The fact of the isolation should only act as a stimulus to the exercise of additional caution in dispensing. However, the onus of preventing mistakes is now thrown upon the Pharmaceutical Society, and we hope that it will do its best to devise some uniform plan of procedure especially by which the distinction in kind of medicine as dispensed may be clearly marked: such, for instance, as the use of the "drop" bottle, by which the attention of the dispenser or patient may be sharply called to the fact whenever he handles a poisonous or an exceptionally powerful drug. Whilst we approve, therefore, of the principle of the Bill, we attach great importance to what may be termed minor considerations.

### THE HENLEY ABORTION CASE.

WE are indebted to Dr. Braxton Hicks for the following report.

——, living as a reputed wife, left London for Henley-on-Thames; and, after taking a long walk, was seized with violent rigors, succeeded rapidly by semi-collapse, a quick pulse, and an anomalous eruption on the body. The third day she had sharp diarrhœa, and at the end of the third day she became delirious. On the fourth day typhoid symptoms came on, and she died comatose. In conseqence of some remarks made by Mr. Brooks on the first visit, the reputed husband said that she had about a fortnight before gone to some one to have abortion procured, but that he knew nothing of it till it was done. It was said to have been accomplished by instruments, by an accoucheur in London. It is gratifying to learn from Dr. Braxton Hicks that the name mentioned is neither in the Register nor in the Medical Directory. A post-mortem examination was made by the coroner's order. The body was rapidly decomposing. But no evidence of any disease was found till the pelvic organs were reached. On pushing aside the bowels to get at the uterus, about a tablespoonful of pus came out from the ovary. On investigating more minutely the matter was found to proceed from the right ovary, which was a little enlarged by a cyst one inch and a half in diameter, in which the pus had been held; but, as the lining membrane was *shining* and smooth, it was evident that it was of some age. The cyst had adhered to the intestine, but the formation of an adventitious membrane had restrained it from bursting into the peritoneal cavity. The uterus was four inches and half long; three inches wide at the fundus. The cavity was correspondingly large. On the posterior wall, to the right, was a yellow patch an inch and a half in diameter, beneath which the lining membrane of the uterus was thickened three times that of the other part. The yellow material was found to be composed of decidual cells. The rest of the lining membrane had a flocculent surface, and had evidently been recently denuded. No mark of any violence existed in the vagina or uterus. The os uteri would not admit the little finger. No pus was detectable in the uterine sinuses, nor indeed any part of the organ. There was a large corpus luteum, such as is found in early pregnancy, in the right ovary. This ovary was highly congested. Thus it was clear that the uterus had very recently contained an ovum. But whether the symptoms arose from the abortion, or from the diseased ovary, or from even a third cause, there was no evidence to show. The most probable cause would seem to be the recent abortion; and the long walk so soon after is very likely to have brought about the fatal result. It is much to be regretted that no evidence was obtainable at the time of the inquiry, which would have traced the criminal abortion to its author. It was stated that this was the third time the deceased had suffered abortion to be procured.

### LEGALISED CRUELTY.

It is as difficult to move an Englishman out of his rut as a Chinese. Season after season comes round, and brings with it the publication of the old placards and handbills putting the public on their guard against hydrophobia, and compelling them to muzzle the unfortunate dogs. Between canine rabies and the thermometer there is no real connexion; least of all is there any between the prevalence of that disease and a high temperature, for it so happens that the greater number of cases occur during the colder months of the year. It is not merely an unnecessary measure, but a cruel one; more cruel than is generally realised. We most of us know what it is to suffer from heat- and we exercise a good deal of ingenuity in order to escape or diminish its effects. We lighten our clothing, drink cooling beverages, and go to bathing-places, about the same time that we muzzle our dog: that is, we debar the poor brute from using a great natural means for diminishing his temperature, and we prevent him from drinking when he wants. A little thought will make this plain. A man or a horse perspires through the skin, which acts as the safety-valve by which the internal heat of the blood is regulated; but with our dogs it is different. A dog never gets into a lather, whatever his feelings may be; but as everyone must have noticed, he opens his mouth, lolls out his tongue to its fullest extent, and pants. Now he does this in order to aërate and cool his blood, the tongue and lungs of these animals being the principal organs by which the watery vapor is exhaled. By muzzling them in the hot weather we do all we can to impede the natural functions, and we ingeniously create a condition which in man would tend to induce heat-apoplexy. The consequence is, dogs frequently get fits if they run hard, and they must inevitably be the subjects of cruel discomfort. When any such unfortunate dog gets wild from his unbearable state, or falls in fit, the vulgar commonly conclude that he is mad, and forthwith commence to hoot and stone him.

Rabies in the dog is well understood, and all authorities are agreed as to the absurdity and cruelty of these regulations. We heartily wish therefore, now that the working man's wrongs have been redressed, that someone would turn his attention to dogs, and get rid of this absurd and cruel process of muzzling them at the very time of all others when they want to keep there jaws wide open. The secretary of the Royal Society for the Prevention of Cruelty to Animals, we perceive, suggests the use of a loose muzzle; but it would require to be very loose indeed to permit them to do this.

### THE LATE KING THEODORE.

Had the late King of Abyssinia been a prisoner in England for some remarkable crime, his character would no doubt have attracted a good deal of attention, and his moral responsibility might have excited some discussion. He combined in his person the most opposite qualities: his ambition, bravery, determination not to become the servant of any living man, the absence of cunning and treachery, and his ungovernable fits of passion and cruelty, were quite different from those of any ordinary savage. He was moreover merciful, abstemious, and chaste during the lifetime of his first wife, whose loss was an irremediable grief to him. Her death appears to have altered his nature. With all his cruelty, we ought not to forget that he was, on the whole, kind to the European captives; and that, as Mr. Clements Markham tells us in his highly interesting account of the monarch's last days in the present number of *Macmillan*, when he resolved on their surrender he did so freely and unreservedly. He gave with an open palm. Not a hostage, not a child, not a box, was reserved or kept back. It appears, too, that he gave those of his followers who did not wish to cast in their lot with him freedom to separate from him; that he was a devout man, and superstitious, reading an ill omen in the obscurity which hung about the sun on the morning of the attack on Magdala; that he believed himself an instrument of God, and a reformer, like the English themselves. After the ill-success attending his attack on our troops he gave himself up to a kind of despair; and subsequently to the departure of his messengers to Sir Robert Napier, he desired to be alone, said a prayer, bowed his head to the earth three times, and then suddenly made an attempt to destroy himself. And this attempt he afterwards repeated, as is now well known, with success. He had fasted three or four days before his death. His body appeared much emaciated. Shortly before the attack on his stronghold he rode about, firing off his rifle many times, in a state bordering on frenzy. Altogether there is something grand about our late enemy; and, as he is dead, let us hope that he might not have been responsible for his actions, but that superstitious ambition, drink, sorrow, and fasting had destroyed his finer qualities, and left him the slave of his baser ones.

By his first wife he seems to have had no children; but by his second—Tormech, the daughter of his defeated enemy, the chief of Tigré—he had a son, who is the child now in our hands, about whom a friend at Malta has forwarded us the following information. He states him to be a very nice-looking little fellow, slight and puny in build. of good straight features, rather thick upper lip, well-shaped head and face, thin in the legs, and rather negro-like in the confirmation of the feet and heels. His eyes are large, clear, and bright, and his skin is not black—in fact, on looking at him one would say he had a good complexion; the skin seems clear and semi-transparent, though the color is bronzy-red.

### HOW QUACKS WERE TREATED IN THE FOURTEENTH CENTURY.

The Corporation of London have published a very interesting volume, which is edited by Mr. Riley, entitled "Memorials of London and London Life in the Thirteenth, Fourteenth, and Fifteenth Centuries." These memorials consist mainly of a series of extracts from the archives of the City of London. The condition of our profession at the time is illustrated by a number of interesting facts. However much we may have improved in many respects, it is certain that our forefathers had a keen sense of their duty towards unqualified persons who assumed to be possessed of medical knowledge. They were punished with a rigor which would be incompatible with modern customs, but which affords a striking contrast to the lenient way in which medical impostors are now treated. The following instance in particular is worthy of mention:—One Roger Clerk professed to be learned in the art of medicine, and prescribed, for a woman suffering from fever, the hanging of a certain document round her neck, containing certain words which he stated were an antidote to the disease under which she suffered. The charm did not work. He was summoned before the mayor and aldermen in the Guildhall of London, at the instance of the husband of the patient, to show upon what authority he practised the art of Medicine. His own statement was sufficient to convict him of being a rogue and an impostor, and was forthwith placed in the pillory, and therein to be punished for the offence he had committed against society. His progress to the pillory is thus graphically described:—"It was judged that the same Roger Clerk should be led through the middle of the city, with trumpets and pipes, he riding on a horse without a saddle; the said parchment and a whetstone, for his lies being hung about his neck, an urinal also being hung before him and another urinal on his back."

The offence which Roger Clerk committed was venial compared with some of the flagrant crimes which quacks nowadays too frequently perpetrate. If he was righteously punished, how should we mete out punishment to the harpies and villains of our time who prey upon the weakness and credulity of the miserable victims who are attracted by their infamous advertisements to place themselves under their care?

### THE PROTOXIDE OF NITROGEN.

THE Quebec journals mention two cases of surgical operation successfully performed under the influence of nitrous oxide in that city. In one case, removal of a cancerous cicatrix, the gas was respired during twenty-five minutes without producing, it is said, any derangement of the stomach, or causing any depression of the heart's action. In the other, Chopart's operation was performed, and occupied so long a time that the gas was all used up, and then the patient, who had hitherto felt nothing, began to suffer. Dr. Pourtier, a French dentist, of Quebec, administered the gas.

We saw the protoxide used at the Middlesex Hospital in two cases, one of which, the removal of an in-growing toe-nail, furnished a good test of the power of the agent to produce insensibility to pain. Dr. John Murray administered the gas to the patient, a lad, whilst Mr. Hulke split up his nail, and removed it in halves. No pain was experienced. The whole process occupied one minute and a half, and in thirty or forty seconds afterwards the patient was able to get up and leave the theatre. In another case, an elderly man with sinuses in the abdominal wall, which Mr. De Morgan slit up, the influence of the gas was not quite so satisfactory. The patient felt some pain. His appearance to bystanders during part of the time was, to all intents, that of a person in an epileptic fit, presenting as he did dense lividity of features, frothiness about the teeth, fixed and staring eyes with dilated pupils, and rigid convulsion of the muscles of the arms. Notwithstanding this aspect, Dr. John Murray, who is well qualified from experience to pronounce an opinion, told us that he should have been quite content to prolong the inhalation. It is impossible to imagine a condition of safety more strongly resembling that of imminent danger to life, and the secret of the physiological condition which obtains has yet to be discovered.

### FRENCH MEDICAL CONVIVIALITIES.

OUR Gallic friends enjoy a world-wide reputation for affability, politeness, and other social qualities. They are prompt, sprightly, and endowed with a keen sense of enjoyment. How is it, then, that they are such bad hands at organising medical ceremonies and convivialities? *En petit comité* they are gay and amiable; and none know better than they how to charm and cheer the festive board. But when it comes to devise festivities on a large scale, to provide for the entertainment of the many, to organise a large and truly significant banquet, they are awkward and apathetic, and far behind us. Such foreigners who attended the International Medical Congress last year will remember how the success of that interesting gathering of the profession was compromised by the want of all variety and initiative, and particularly by the total absence of any sort of entertainment, or means whereby the members might have met in friendly intercouse, and found some relaxation after the business of the day. Is it that our friends are not practical?—or, having lost the habit of discussing their interests in large numbers, no longer know how to mingle the *dulce* with the *utile* when they gather in force? Or is it through a want of cohesion and cordial *entente* among the members of the medical community—with whom we are more specially concerned? A banquet has just been given to celebrate M. Bouillaud's election at the Academy of Sciences; and we are told that its organisers confined the admission of subscribers exclusively to M. Bouillaud's former or present *externes* and *chefs de clinique;* and, therefore, not more than forty persons met on the occasion. A queer and meagre way of doing things—one which would not have been chosen by the medical community of this city to congratulate a veteran, one of its most eminent and honorable men, on his receiving a deserved scientific honor like the one M. Bouillaud has recently attained.

### HEALTH-RESORTS FOR PULMONARY PATIENTS.

To winter abroad has now become not only a common piece of advice, but of practice; and various correspondents of the daily papers have already commenced to give their opinions as to the best winter health-resorts. We are not about to recommend any pet place of our own; but we may direct attention to the fact that invalids often do not reap all the benefit they might by returning to this country and remaining in it all the summer. And we are reminded of this by the benefits which sometimes accrue to patients, who have spent the winter in the South of France, by a residence at this season at Eaux-Bonnes, where they can enjoy a cheerful open-air life at an altitude of about 2500 feet, in a sheltered valley rich in the verdure of a favored latitude during the best season of the year. Dr. Leudet, in his pamphlet "Des Effects immédiats et éloignés des Eaux-Bonnes dans le Traitement de la Phtisie Pulmonaire," assigns a high rank to the Eaux-Bonnes springs among the therapeutic agents capable of producing salutary modifications in pulmonary phthisis. He considers the local lesions, and the constitutional conditions with which they are associated, to be favorably influenced by the use of those waters. We must refer to Dr. Leudet's pamphlet for the reasons on which these statements are founded. We can, however, speak to the apparently beneficial effects of these springs upon the bronchitic complications of the disease, and, as we have said, to the very salubrious and pleasant nature of the climate of Eaux-Bonnes.

### THE NEW INFANTRY KNAPSACK.

We make no apology for recurring to this subject. From a paragraph in the last number of the *Army and Navy Gazette*, as well as from rumors which we have heard, it seems now possible that the soldier's health and comfort may weigh as nothing in the balance against the importance of maintaining that smart martial appearance so dear to the eyes ot officers of the old school. It is pretty well known that some of the military authorities view the new equipment with anything but favor. They look upon the doctors as desirous of clothing the troops, and do not relish the idea of yielding anything to the professors of sanitary science. The evils of the old system are so well known and apparent, however, as contrasted with the unobjectionable nature of that recommended by General Eyre's Committee, that we think objectors at the Horse Guards must give way. It is a matter the importance of which we, as a profession, are better competent to estimate than any other class, because we can more clearly trace the injurious influence of the present knapsack in inducing the various forms of physical incapacity and disease of which it is unquestionably the source.

### THE DISCOVERY OF ANIMAL QUINOIDINE.

We observe with regret that a very meritorious worker in the field of physiological chemistry is likely to be deprived of his due meed of credit for an important discovery; and we consider that we shall be doing a service to science by rectifying the erroneous impression which has got abroad. The discovery of a substance resembling quinine in the human body, which was originally made in this country, has attracted much attention abroad as well as here, but the real discoverer seems to have been lost sight of, since we lately saw the researches spoken of as if they had been made by Dr. Bence Jones. This is not the case. It is true that they were first announced in Dr. Bence Jones's lectures, but they were entirely originated and carried out by Dr. A Dupré, lecturer on chemistry at the Westminster Hospital, to whom Dr. Bence Jones had applied for assistance, and who, in fact, performed the series of researches upon the diffusion and elimination of medicinal substances upon which Dr. Bence Jones based his interesting lectures on these subjects. We speak from our own knowledge of this matter, having witnessed the whole of the quinoidine experiments from first to last in the laboratory of the Westminster Hospital; and we consider it only justice to Dr. Dupré, whose patience and ingenuity of research deserve high praise, to take care that he receives his due on the present occasion.

### A GRATEFUL PATIENT.

The following is an extract from a letter recently addressed to a hospital physician by a patient who had formerly enjoyed his skilful and gratuitous attention during many months:—"Some time ago I was under your kind skill, and by God's blessing upon the means employed I have been restored to health, and now again raised up as from the dead. I am anxious to employ what time and opportunity for Him I can. I have been asked to try and procure contributions for the Church described in the circular. Could you spare anything towards it I should be very thankful," &c. It is sometimes suggested that gratuitous patients are deficient in their appreciation of services rendered to them. In the present case there is evidently no cause for such a charge. Gratitude has been defined as "a lively sense of benefits to come," and judged by such a standard this patient is very grateful.

### PROTOXIDE OF NITROGEN.

A number of medical men assembled at the house of Mr. C. J. Fox on the 9th instant, to hear an account from Dr. Colton, of New York, of his experience in the use of nitrous oxide gas as an anæsthetic, as well as to witness a few dental operations with the gas. We find that Dr. Colton, who must be considered as having had by far the largest experience of this agent, does not speak very strongly of its utility in general surgery, but lays stress upon its convenience and safety in rapid operations, such as tooth-drawing. We have already on more than one occasion expressed a similar opinion, from observations of its effects when administered in more than one of the metropolitan hospitals.

A magnificent collection of photographs of the surgery of the late American war (100 in number) has been presented to the Royal College of Surgeons in Ireland, by the Surgeon-General of the United States Army. As works of photographic art they are most admirable; in some of them mirrors having been called into play to give at one and the same sitting anterior and posterior illustrations of the effects of gunshot wounds. The College is indebted to the kind offices of Dr. Gavin, one of its *alumni*, for this most interesting collection; a fact which must enhance in their eyes the value of the gift, as it proves that, though far distant, he has not ceased to look back upon his *alma mater* with an affectionate regard.

**Dr. Thudichum** read an interesting paper before the Royal Microscopical Society on the 10th of June, in which he referred to the recent researches of Thomé, Klobe, and Hallier, in connexion with the development of fungi in the intestinal tract in cholera. The author adduced many arguments, chemical, microscopical, and pathological, to show that the poison of cholera is not of the nature of a fungus, but that it is a subtle change in the blood throughout the body, many of the evidences of which could be obtained by spectrum analysis. Dr. Thudichum's researches on this point, we understand, will shortly be published *in extenso*.

M. **Tardieu**, former Dean of the Faculty, and President of the Consulting Board of Health, has been chosen by the Emperor as President of the General Medical Association of France. M. Tardieu, at the recent general sitting of the Association (met to prepare a list of names for presentation to the Emperor) had received only one more vote than Baron Larry, who, with M. Ricord, was his competitor on the occasion.

The abominable practice of bleeding calves prior to their being killed, for the purpose of whitening their flesh, is, we regret to find, still carried on. Last week, at the Liverpool Police Court, a butcher was charged with this cruelty. Three calves were found tied down in a cart, each with a wound in the neck, the straw in the cart being saturated with blood. A paltry fine of twenty shillings was inflicted for each case.

**The** Emperor of the French is giving serious consideration to the question of the insane, and particularly the right which their parents or friends possess of having them shut up in an asylum on the strength of a simple certificate from a medical man. It would appear that several high authorities on the subject have already been called in by the Emperor.

**Yellow fever** is still on the increase in Lima and Callao. It is difficult to ascertain with certainty the daily mortality. According to the most recent accounts the number of deaths at Lima per day varied from 150 to 200, the latter being probably the more correct.

**Psoriasis** has, by an Italian writer, been put in juxtaposition with scurvy. The latter is caused by an exclusively animal diet; the former by excess of vegetable food. Advise against psoriasis a modified Banting system (leave out wine and spirits), and you'll succeed.

# Reviews and Notices of Books.

*On Diseases of the Chest: being Contributions to their Clinical History, Pathology, and Treatment.* Part I.: Diseases of the Lungs. Part II.: Diseases of the Heart, and Thoracic Aneurism. By A. T. H. **Waters**, M.D., F.R.C.P. Lond., Physician to the Northern Hospital, and Lecturer on Physiology at the Royal Infirmary School of Medicine, Liverpool. London: Churchill and Sons. Liverpool: Adam Holden. 1868.

**This** is a work of very great merit. It is not a systematic treatise on diseases of the chest; but it treats of so many of these diseases as pretty well to include the author's views of them all, and of the principles upon which they should be treated. Much of the book is in the pleasant and practical form of clinical lectures. Other chapters, such as those on Emphysema, have already appeared in a separate volume. We are glad, however, that Dr. Waters has collected his various deliverances on these subjects and published them in a volume which must take rank with the standard works in this department of medical literature. The book is at once original and authoritative. There is a fine variety of value in in it. It is the work at once of a minute anatomist, a sound physiologist, and a most sagacious physician. Different readers will consult the book for different purposes and with varied degrees of pleasure. But we may venture to express a hope that it will gain admission largely into the libraries of general practitioners, who will find themselves, after the reading of it, clearer in their conceptions of the pathology of these diseases, and greatly strengthened in the therapeutical management of them.

Having expressed ourselves thus, and very earnestly, in approval of Dr. Water's work, it is the less necessary that we should go into much detail either of analysis or approval. The parts which seem to us specially worthy the attention of physicians are the chapters on Pneumonia, on Emphysema, on Pleurisy and Pleuritic Effusion, on Phthisis, and on Fatty and other Diseases of the Heart. When it is considered how largely these various affections enter into medical practice, and how often some of them drift into chronic states which foil and harass the medical man, the value of a book like this will be more readily appreciated.

The chapters on Pneumonia are perhaps the most valuable contribution to the elucidation of the subject since Dr. Bennett's cases and views were published. They go to confirm these views. They show that under a discriminating treatment this disease is not a fatal one, but one highly creditable to the medical art. The chief positive particulars of this treatment are: the support of the patient in all cases by nourishment, and in many cases by some form of alcohol; the occasional use of opium for the relief of sharp pain; the use of fomentations and poultices, and the frequent use of ammonia and chloric ether. The negative features of the treatment are equally noticeable, and consist in the absence of bloodletting, of mercury, and of powerful purgatives. There is no room for contention about the rightness of this treatment, for of forty-four cases only one died.

The articles on Emphysema are exhaustive and lucid. They constitute one of the best accounts of the disease which can be read. Dr. Waters does not adopt any exclusive theory of the malady. He thinks the milder and more partial forms of emphysema are most frequently found in connexion with the cough of bronchitis and similar states. He admits that the severer cases of the disease are not to be so explained. After describing such cases in which there had been little cough, and in which no collapse of any part of the lung-tissue is found post mortem, he says:—

> "To what mechanical cause, then, are we to attribute the distension of the lungs under the circumstances just mentioned? From the non-existence of cough and bronchitis, and the prevalence of emphysema throughout the lung, we cannot attribute any effect to expiratory efforts, and I am disposed to think that the distension is brought about by inspiration; that the lung-tissue, being in an unhealthy condition, and abnormally weak, gives way before the pressure which it would in a state of health resist; that, having once yielded, it is unable to recover itself, from having lost its elasticity. Consequently, it undergoes further distention as increased efforts are made to dilate the chest in order to meet the requirements of respiration; until, at length, the thorax having reached its extreme point of dilatation, no further enlargement of the lungs can ensue."—p. 143.

We especially commend the chapters on the Treatment of Pleurisy to careful reading. While tending to shake the reputation of mercury in such cases, they go to demonstrate the utility of medical treatment in controlling vital actions and their mechanical results.

We have got to the end of our space without noticing many important points in Dr. Waters's physiological and medical views. We can only indicate some of these as worthy the attention of readers, especially his chapters on the production of the heart sounds, and his objections to the prevalent theory of the first sound; and his views of the great value of iron in bad emphysema, in cases of fatty heart, and other serious states of chronic disease.

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*A Monograph on the Structure and Development of the Shoulder-Girdle and Sternum in the Vertebrata.* By W. Kitchen Parker, F.R.S., F.Z.S. London: Hardwicke. (Ray Society.) 1868.

The members of the Ray society may well be congratulated, both as contributors towards the publication and as after-recipients of so splendid a work as is Mr. Parker's "Monograph on the Structure and Development of the Shoulder-Girdle and Sternum in the Vertebrata"—a massive tome, in very large quarto-comprising more than 200 pages of printed matter, and no less than 30 plates, full of well-executed and clear illustrations. The value of this publication is further enhanced by copious extracts, translated into English from certain works of the great embryologist Rathke, such as his treatises upon the Breast-bone of Saurians and upon the Development of the Chelonia.

Mr. Parker, in the course of a few concise and clear introductory remarks, avows his intention of steering clear of the Scylla and Charybdis of "final causes" and "transcendentalism," by the avoidance of all nomenclature having a teleological meaning, on the one hand; on the other, by the putting away every childish thing in the guise of an "apophysis," *morphology* of parts being his golden mean, and serving as the surest ground work for future generalisation.

Histology has not been neglected by Mr. Parker in researches which might at first sight seem to make demands upon the naked eye only. Three modes of ossification are recognised as taking place in the *accessorg* as distinguished from the *axial* skeleton: that commencing in the intercellular substance of hyaline cartilage being termed "endostosis;" "ectostosis" being applied to that which takes place in the inner layer of the perichondrium, in immediate contact with the outermost cartilage-cells; while ossifications which occur primarily in the skin, in subcutaneous fibrous tissue, or in aponeuroses, are included under the term "perostosis." With regard to *segmentation*—a most important process,—this takes place in two modes: either by the fission of a tract of hyaline cartilage, or by the formation in it of two or more osseous centres.

Mr. Parker begins with the Placoid fishes—e. g., the rays; since in the lowest of the class, the suctorial lampreys and their congeners, both limb-girdles and limbs are absent, and since the correlation of the exo- with the endo-skeleton in the Ganoids—such as the sturgeon—and the Siluroids, renders the shoulder-girdle of these fishes somewhat wanting in the simplicity so necessary for a first instance. Among reptiles, the Chelonia—tortoises and turtles—offer the most interesting peculiarities in their "plastron," the true hæmologies of its elements having been a moot point with anatomists; some—among them the elder Geoffroy St. Hilaire—holding that its factors answer to those of the sternum of higher vertebrates, and notably that of birds; others of more recent times, such as professors Caius and Peters, maintaining that it is equivalent to a portion only of the sternum of higher animals, part belonging to the dermal skeleton. Rathke, however, and Mr. Parker have come independently to the conclusion that the "plastron" is developed solely in the subcutaneous tissue, and therefore that the homologies accredited to it by the above anatomists have no foundation.

With the warm-blooded vertebrata morphology becomes a very complex study, owing to changes which these undergo analogous to the metamorphoses of insects. There are, however, *generalised* types among birds and mammals in which reptilian affinities may be recognised—such are found respectively in the orders of which the ostrich and platypus are representatives.

In most birds the "furcula" or "merry thought" —once held to be the homologue of the "episternum" alone in lizards and in the Monotremata—is made up of the interclavicular element as well as the two clavicles, except in the rails, some passerine birds, and most of the owls, where the clavicles meet without the intervention of the former factor. The sternum, however, in the case of birds, presents the greatest complexity to the anatomist, in that it may be parceled out into no less than three transverse and five longitudinal parallel regions. Its ribs—in all birds, the penguin only excepted—are like the vertebral ribs, ossified by ectostosis *at first*, this process being preceded by endostral deposits in the above-mentioned exception.

It has already been hinted above that marked reptilian affinities may be recognised in the order Monotremata, of which the platypus is a representation. These affinities are, however, rather with the Lacertilla and certain extinct Sauria than with the highest types—e. g., the crocodile. More than this, too, as Mr. Parker suggests, there is actually no necessity for any avian bridge to span the very slight gulf which seems to separate mammals from reptiles; for birds have the lineaments of the osseous fishes imprinted upon the skull and face,—"the most important morphological regions."

It is impossible to overrate the important bearing which Mr. Parker's researches will have upon the *serial* as well as the general homologies of limbs; especially when the development of the girdle of the pelvis shall have been worked out in as earnest and philosophical a spirit as that which pervades the monograph upon the shoulder-girdle; and who, we ask, so fit to undertake this task as Mr. Parker?

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*The Physiology of Man; designed to represent the Existing State of Physiological Science as applied to the Functions of the Human Body.* By Austin Flint, Jun., M.D., Professor of Physiology and Microscopy in the Bellevue Hospital Medical College, New York, and in the Long Island College Hospital, &c. 8vo. pp. 556.

This is the second volume of an extended work on physiology, of which the first has not come under our observation. It is devoted to Alimentation, Digestion, Absorption, Lymph, and Chyle, and forms a complete treatise on these subjects. The complete work, judging from the present instalment, will prove a valuable addition to our systematic treatises on human physiology. The volume before us is executed with conscientious care, and the style is readable and clear. It is a volume which will be welcome to the advanced student, and as a work of reference. It is not necessary, neither have we the space, to follow Dr. Flint, the younger, from point to point. There are questions, as, for example, respecting the destination of alcohol in the economy, where we should join issue with his conclusions. But even where we dissent from him, he states his opinions so fairly and moderately that the student who may accept his conclusions will not fail to perceive that the positions are not unassailable. In reading Dr. Flint's pages we are struck, in the chapters referring to alimentation, with certain illustrations of physiological questions derived from the experience of the late war. Especially we may refer to the instructive examples of the influence of deficient and bad food upon the economy, as exhibited by Federal prisoners of war in the power of the Confederates. The following concerning abundant feeding is also most suggestive:—

> "The United States army-ration is the most generous in the world, and the result has been that, in the recent civil war, scurvy and other diseases, which are usually so rife in armies subject to the exposure and fatigue incident to grand military operations have been comparatively rare. In some of the long and arduous campaigns of the war the marches made by large bodies of troops, and the labor performed, showed an amount of endurance heretofore unknown in military history. The excellent physical condition of the men was further evidenced by the remarkable per-centage of recoveries after serious wounds and surgical operations, and the slight prevalence of the ordinary diseases, except those of malarial origin."—p. 126.

Dr. Flint's volume, it may be added, is adorned with that imposing margin which has become characteristic of the United States' library edition of medical works.

## THE PROPAGATION OF CHOLERA

A REPORT on the Cholera Epidemic of 1866 has just been completed by Dr. Farr, in which all the facts obtainable from the records of the Registrar-General's Office before him, he reviews the circumstances attending the outbreak of the disease in East London, and shows how entirely his original hypothesis of water contamination as the cause of the "explosion" is borne out by subsequent investigation.

Since that explosion occurred its causation has been discussed, and theories have been advanced and combated over and over again. "The waters of the East London Company," says Dr. Farr, "their reservoirs, their works, and their servants, have been examined before several tribunals, and it has all been done at leisure after the epidemic had subsided." But the original charge against the Company was made "in the midst of the tempest," on the faith of the "accumulated experience of previous epidemics, the known laws of the disease, and the facts of the case looked at comprehensively." The matter at issue was enshrouded in difficulties, but "the fate of the ship to some extent depended" on the warnings or suggestions which the Registrar-General had to offer on the spur of the moment, and the water was the element of danger so pointed out.

The total deaths from cholera in London (including the West Ham District, which forms part of the water-field of the East London Company) during the year 1866 were 5973, and by diarrhœa 3197; the two diseases causing altogether 9170 deaths. But these were so unequally distributed that taking the population into account, the rate of mortality in the groups of sub-districts forming the several areas of distribution of the Water Companies varied in the following manner:—

| | Deaths. | | Death-rate per 10,000. | |
|---|---|---|---|---|
| | Cholera. | Diarrhœa. | Cholera. | Diarrhœa. |
| Chelsea, Grand Junction, and West Middlesex | 266 | 687 | 3·6 | 9·2 |
| New River (separately) | 681 | 846 | 7·8 | 10·0 |
| New River and East London (in conjunction) | 378 | 122 | 33·6 | 10·9 |
| East London (separately) | 3947 | 813 | 72·1 | 14·8 |
| Lambeth, Southwark, and Kent | 721 | 729 | 8·3 | 8·4 |
| | 5973 | 3197 | 19·3 | 10·3 |

It is the enormous disparity between the ravages of the epidemic in the eastern water-field and the rest of London that has to be accounted for; the cause of the cholera mortality up to the rate of 5 in 10,000, whether on the north or south side of the river, being taken as "explained by the diffusion of the cholera stuff through personal intercourse, sewers, and the slight contamination of the waters or the Thames and of the Lea after filtration by the water companies." The facts show that the epidemic cholera matter found its way in 1866 into every district of London; that its quantity varied, and was confined in every district within narrow limits, except in the water-field of the East London Company, where the cholera deaths also varied from place to place, but were nearly everywhere so excessive as to leave no doubt that an excess of cholera-matter (*cholrine*, as Dr. Farr names it) was distributed over that field. And this variation in the mortality—going to such an extent as that an inquirer would frequently find successive sections of a district in each of which several deaths had occurred side by side with consecutive sections in which no death had happened—Dr. Farr says is analogous to those irregularities which are observed in games of chance, "for this reason, that the *cholrine* no matter how distributed, is dealt out irregularly, and in various doses, in various states of activity, to individuals who are all in exceedingly variable degrees susceptible or non-susceptible of the zymotic action, and differ in the greatest extremes in their command of remedies in both the premonitory and the advanced stages of the malady."

Passing to the means by which cholera was thus unequally diffused within the metropolitan area, Dr. Farr observes that, starting from the point (which may be taken for granted) that Asiatic cholera was by some agency brought in to England in 1866, and that the disease is propagated by the cholera flux, the germs must have been diffused either (1) by personal contact, (2) by transmission through the air, (3) by dissemination in vapor of sewers, or (4) through the medium of water. Of the first of these theories Dr. Farr remarks that free communication of the population in every part of London would naturally lead to a free distribution of the disease, irrespective of locality. The atmospheric and sewer-vapor theories are thus dealt with:—

"The stoppage of effects of the vast stream of air at the boundary line of one particular kind of water-supply, and the fact as well as the effect of the deflection of the wind, are neither reconcilable with meteorological observations nor with the known laws of pneumatics. The air is breathed by the whole population, yet only a certain number die of cholera; so the theory, on this score, encounters as great difficulties as the water theory, and may claim analogous solutions...... If the case is argued on the basis that Asiatic cholera is propagated by the cholera discharge (and no other basis deserves much attention), then it is evident that in the East Indies, under the ordinary practices of the population, the cholrine may be either wafted through the dry air of the dry season, or in the rains washed into the tanks; but in London with the watercloset system and with sewers; the diffusion by the dry method must be rare and insignificant. From the surface of a saturated solution of cholera sewage in the Thames in the Lea, in the Limehouse Cut, or in the stagnant sewers, it is exceedingly probable that a certain quantity of the cholrine rises. Several facts seem to show that this actually occurs, The quantity of this matter that is carried up by the volatility of vapor or by currents into air must be small in comparison with the quantity in the waters of the Lea and of the Thames at the in-takes of the water-pipes. The quantity of cholera-corpuscles in the air of East London could scarcely be greater than the quantity of vibriones detected by Dr. R. D. Thomson in sewer air or in cholera wards and by Dr. Hassall in the vapor distilled from cholera rice-water teeming with vibriones; now the first quantities were small the last *nil*."

The water theory alone remains to account for the remakable localisation of the epidemic of 1866 in East London; the original hypothesis being that by the distribution of water from reservoirs receiving by percolation or direct admission, the foul stream of the tidal Lea, containing the cholera germs from the dejections of the first cases which were traced by Mr. Radcliffe, into the Lea, diffusion of cholera, and the localisation of its main attack within the limits of one water-field, were brought about.

Many objections having been raised to the water theory of propagation, we proceed to extract from Dr. Farr's Report those passages which have reference especially to the "exceptions" advanced by Dr. Letheby and others to prove the inapplicability of the hypothesis. One of the objections was based on the enormous dilution to which any cholera germs that might have passed into the river from the first cases must have been subjected. That objection is thus met:—

"It may appear at first sight impossible that the cholera flux of one or more patients should produce any effects in the waters of a river like the Thames. The average quantity of this flux is large, but it has not been determined directly, and it varies with the severity or the duration of the disease. Applying Pacini's data to the fatal cases of different operations, it is found that the average volume of the dejections in a cholera case is equivalent to 8·24 litres. How many cholera corpuscles this quantity contains cannot be calculated. They are exceedingly minute. By Pacini's estimate 1000 millions would not occupy more space than a cubic millimetre; and there are a million cubic millimetres in a litre of water. The number of litres in the river Lea at high water is 1416 millions; at low water, 142 million litres. And according to Vierordt, one litre of blood contains about 5069 million globules; consequently, the corpuscles in the eight litres of the flux from a patient, if in equal density, would run up to 41,566 millions. It is certain that the flux finding its way down the sewers would not be equally distributed in the river Lea for instance, but in the water would be in irregular masses like clouds in the sky; and that at some points a quart of the waters might contain hundreds or thousands of corpuscles capable of propagating their numbers by millions in the mucous membranes of the stomach and intestines. Whether the chorea corpuscle can propagate itself in sewage water at a high temperature is not yet known, but its diffusion is adequately accounted for on the hypothesis that it is only propagated in the living organism."

Dr. Farr then deals with some of the remaining "exceptions" to the water theory; and, in regard to the immunity of persons and places within the area of the East London water-field, he gives an illustration which shows the value of any argument derived from that immunity:—

"Eels, as we have seen, were found, in the water of a certain number of houses in East London. To argue that in hundreds of other houses no eels were found, and that therefore the company never distributed eels in the district, would be absurd. The fallacy of such reasoning is transparent. It assumes the form: if no eels are found in the waters of a certain number of houses, none exist in the waters of any houses. As the eels are limited in number, they cannot be distributed universally; and the fact that they were discovered in one house and not in another, would depend on laws and circumstances so intricate as to make the ascertained distribution anomalous, but not necessarily more anomalous than the distribution of the lower forms of organic matter to which the phenomena of cholera in man are due. ....... In the districts supplied by seven water companies, *one* death by cholera occurred on an average in 159 houses; in the same number of houses, supplied by the East London company from Old Ford, *eight* deaths by cholera happened on an average. A similar relation between this special impurity of the water and the mortality when cholera is epidemic has been observed repeatedly. The argument applies to workhouses as well as to houses. To cite a case in which the inmates of one or more workhouses are attacked by cholera, as they might be, without receiving the infection through water, and to cite other cases in which the inmates of work-houses supplied with East London water escaped, is to cite examples of the general law; as all that is to be accounted for is the excess of seven deaths, or sometimes less, and often more, in the several sub-districts that got their water generally but not always, from the Old Ford pumps, which sometimes supplied fresh, and sometimes foul, water."

Dr. Farr refers to his facts* in disproof of the assertion that there was no coincidence of time in the outbreak of cholera in the districts supplied from Old Ford, and that a month elapsed in several districts and no outbreak appeared. "The comparison of the propagating cholera-poison with arsenic, which does not reproduce its like, is entirely illusory; but if arsenic had been distributed, like the water of the Old Ford pond, it would not have reached all the districts simultaneously."

Then it has been stoutly declared that the districts supplied respectively from Old Ford and from Lea-bridge are absolutely undistinguishable, but Captain Tyler's lucid report, and the evidence of Mr. Greaves, the company's engineer, before the Rivers Commission, leave no doubt on that point. Again, the assertion that the conclusions drawn from the experience of South London in 1854 are open to doubt, because "it has been found since that no one knew what water was given to the houses of any particular district," is disposed of by the simple matter-of-fact statement that "the two water companies of Lambeth and Southwark gave from their own books the names of the streets and the numbers of the houses which they respectively supplied; while the deaths in the houses supplied by each company, both in 1849 and in 1854, were abstracted from the books at the General Register office."

The immunity of North Woolwich and Stamford Hill is thus accounted for:—

"As the direct distance from the Old Ford resevoir to North Woolwich is above four miles, and the water appears to travel along one low arterial main, which is kept always full, it is evident that if suspended cholera-matter undergoes any change it will be modified before it reaches North Woolwich, and will necessarily be diluted as the heavier molecules fall down on the way. The main leading up to Stamford Hill (about three miles and a half) will by gravitation be prevented from conveying all the matter of a heavier specific gravity than water up to the height of that reservoir. But such a sudden influx of the pond water of Old Ford as is described by the witnesses would be injected at once with some velocity into the near empty pipes, yielding water on the intermittent system. And here one of the many advantages of the constant system of supply is evident: under it fresh zymotic matter is less likely to be throw into people's dwellings at a distance.

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* Table xxiv., pp. 56–7, of Appendix to Cholera Report.

"In the two remoter regions the epidemic took the milder form of diarrhœa, and this may be due either to the accidental diversion of the matter from their mains, or from its greater dilution and age."

In effect we understand Dr. Farr to enforce, as a matter of the first importance, the necessity of bearing in mind that the changeable nature of the cholera-matter, and its variable behavior under different circumstances, are elements which must be kept constantly in view if erroneous conclusions are to be avoided.

But in addition to the evidence in support of the water theory which the circumstances attending the East London epidemic affords, there is a parallel case which as Dr. Farr shows, confirms the soundness of the hypothesis that water is ordinarily the medium by which the germs of cholera are diffused. The evidence taken before the Commission of Inquiry into the outbreak of cholera at Newcastle-upon-Tyne in 1853 established the fact, that the distribution of impure water was coincident with the spread of the epidemic, and that the change to a purer source on a given day was immediately followed by the decline of the disease. And the parallel with East London is thus lucidly set forth:—

"In the suddenness and generality of the outbreak all over the two water-fields, Newcastle and East London, agree. All the various classes of people and all parts of the locality were attacked with an intensity varying to a great extent. The water was pumped before the outbreak at Newcastle from reservoirs lowered unusually, and replenished from the tidal stream of the Tyne, which was the common receptacle of the dejections. The water was pumped by the East London Company from reservoirs which were in immediate communication with the Lea river at a time when it was charged with the sewage and cholera dejections of West Ham and East London. The sewers and streets in both places were flushed and washed into the rivers at the height of the outbreak....... It is known that the engineer at Newcastle ceased pumping from an impure source on Sept. 15th, 1853, and it is assumed that on August 1st, 1868, the East London engineer did the same. Now by making these days the centre of a group of deaths in three days, we find that the deaths, when the water was impurest, were 409 in Newcastle, 467, in East London; and if the hypothesis holds as to East London, then the numbers should decline by a similar law in both populations. This the law numbers obey.

"The numbers of deaths by cholera ran thus:—

| | Newcastle. | East London. | |
|---|---|---|---|
| 3 days, Sept. 14, 15, 16 | – 409 | 467, | 3 days, July 30, 31, Aug. 1. |
| „ 17, 18, 19 | – 361 | 367 | „ Aug. 2, 3, 4. |
| „ 20, 21, 22 | – 281 | 292 | „ 5, 6, 7. |
| „ 23, 24, 25 | – 219 | 233 | „ 8, 9, 10. |

"If we change the initial central days to September 16th and to August 1st respectively, and so on, the relative proportions are not much altered; they become for Newcastle 404, 345, 254, and 187; for East London 476, 328, 265, and 215. The last three numbers for Newcastle, when the law of decline was in full operation, decrease in geometrical progression; while in East London the decline was also at a uniform rate in geometrical progression."

The analogous results yielded by these two great experiments have convinced Dr. Farr that it may be now laid down as an established law that water into which cholera dejections find their way produces cases of cholera all over the district in which it is distributed for a certain period of time; and that if the distribution is in any way cut short, the deaths from cholera begin to decline within about three days of the date at which the distribution is stopped.

## EMBOSSED PRINTING FOR THE BLIND.

There are a few things of more importance to the blind than that they should be enabled to read with ease by touch, and that their literature should be as extensive and as cheap as possible. At present, however, much confusion, and not a little unnecessary expense, are occasioned by the absence of uniformity of system. There are now five symptoms in common use in England, each of which has its partisans.

In giving a brief sketch of these, and suggesting the means by which uniformity may best be attained, we hope to lend some practical aid towards the welfare of those whose affliction is a standing appeal for universal sympathy and assistance.

There are two systems of printing in which the ordinary Roman character is used: in Alston's, Roman capitals are employed; in what is called Taylor's, or the Bristol system, the letters used in ordinary printing are embossed. The main objection to both these systems is that the Roman character is not so readily recognisable by touch as its rivals, and fluent reading, therefore, cannot easily be attained; whilst, from the words being spelt in full, the finger has to traverse more ground than where a shorthand system is employed. The additional bulk, also, of the books renders them cumbersome and expensive.

There are three systems in which arbitrary characters are used,—Lucas's, Frere's, and Moon's; the first two being shorthand systems, the latter a a longhand one combined with abbreviations. Frere's system, besides being shorthand, is phonetic. In Moon's most of the characters used in its predecessors (Lucas's and Frere's) have been retained, but very unfortunately their signification has been altered, thereby causing much unnecessary confusion. The advantage of Moon's system is that it is very simple, and easily acquired, so that those who have not the intelligence or requisite energy to learn shorthand, are enabled by it to read with tolerable ease. It is, however, not true, as has often been stated, that adults can learn no system but Moon's. Persons of ordinary intelligence, even at an advanced age, can and do learn either of the shorthand systems. It is a disadvantage of Moon's system that the books are much more bulky, and that rapidity of reading can never be so great as when a shorthand system has been acquired. The relative advantages and drawbacks of Lucas's and Frere's are not so readily stated; and we should exceed the limits of the present article were we to attempt to detail them.

How are we to explain the existing confusion? We believe it to be caused partly by the natural partiality of the patrons of each system inducing them to extend its use in ignorance of what has been done in other directions, and partly by the fact that, in the adoption of a system, the wishes of the blind themselves are not always consulted; and certainly no persons are better qualified to appreciate the merits of a scheme than those who have to use it.

It is obvious that if these five systems could be reduced to one or two—say a shorthand plan for the intelligent and a full written one for the dull,—great economy would result, the literature of the blind might be largely extended, and much unnecessary trouble would be spared. A right conclusion, however, can only be arrived at by those who are themselves conversant with the existing different systems. It is certain that persons with good sight will not go through the drugery of acquiring these processes. To the blind, therefore, or at least to those whose sight is very defective, we must look for active work in this direction, and amongst them to those whose position and intelligence enable them to take up the matter skilfully and without predjudice. It is from this conviction, and with the object thus indicated, that a committee has been formed in London of gentlemen who either already know, or are willing to learn, at least three of the systems, and who are themselves blind, or at all events whose sight is so defective that they are obliged to use raised letters for reading. Care is of course taken that the members of the committee have no pecuniary interest in any system. The active originator of this scheme is Dr. Armitage, of 33, Cambridge-square, a respected member of our profession, who is himself, unhappily, qualified in the manner described. We are sure that any of our readers who are acquainted with blind gentlemen willing to assist in the scheme will inform them of the constitution of the committee, and refer them to Dr. Armitage. It is of course desirable that the committee should be large, but it is especially important that its members should investigate the subject in a scientific spirit. We anticipate the great benefit to the blind will eventually arise from the sensible plan of inquiry which is thus being adopted.

## News Items, Medical Facts, &c.

**The Perils of the Medical Profession.**—Dr. Juge died lately, in Paris, at the early age of forty years. He had practised in the provinces, and had been settled in the French capital only five years. The deceased was highly respected and beloved in his birthplace, as well as in the localities where he had been residing; and the most touching marks of reverence were paid to his remains when, according to his wish, they were conveyed to his native village. The peculiarity of the case lies in the rapidity with which Dr. Juge was carried off. About ten days before his death, a pin, which had not been used for any pathological purpose, pricked his little finger. Of course no attention was paid to this. Two days afterwards, however, he was seized with rigors; the finger became red and painful, and swelled considerably; erysipelas set in and ran up the arm; delirium came on; and death ultimately ensued. Now it should be noted that Dr. Juge was an indefatigable investigator in medical science; that his brain was habitually overworked; and that, consequently, his nervous system was in a state of constant irritation. That the pin had not come in contact with some noxious principle no one could of course maintain; but it may be suspected that the state of the system—a state which, to our knowledge, obtains with many of our professional brethren—had much influence on the fatal issue. Let this be a warning.

**The Use of Remedies during Menstruation.**—In a work lately published at Paris by M. Raciborski, the author endeavors to show that the prejudicial effects of remedies used during menstruation have no existence. He considers that our acquaintance with the physiology of this function should destroy a prejudice existing both in and out of the profession. M. Raciborski has prescribed emetics and purgatives during the catamenia, and even venesection, without in the least disturbing menstruation. A great point, according to the author, is to explain to the patient that no ill consequences will result from therapeutical interference during the catamenia, as her apprehensions might otherwise prove uncomfortable. Of course no remedies should be used except they be clearly indicated.

**The New Hotel Dieu of Paris.**—The construction of this hospital is carried on with such activity that the first floor is almost completed, and an idea may be formed of the extent of the building when it is mentioned that it covers 22,000 square yards, the hospital consisting of three separate blocks. The original Hotel Dieu dates as far back as the seventh century.

**The late Episcopal Attacks on the Faculty of Medicine of Paris.**—Ricord is said to have remarked, in mentioning the late defeat of the cardinals in the Senate, that it was a proof of *mitral insufficiency!*

**Another Cattle Disease.**—We learn from the *New York Times* of the 23rd May, that a very subtle and terribly fatal disease is now raging among the cattle in some portions of Illinois. Over 100 head had fallen victims to it within the past few days. It usually kills in a few hours. No premonitory warnings are given, and although all the skill in possession of ordinary practitioners has been brought to bear upon it, it yields to no remedy or treatment, and is fatal in every instance. Its name and nature have not yet been determined.

**An** Orkney paper reports a singular case of strangulation in the island of Stronsay. An old man, named Neil Macpherson, who was carrying on his back a bag containing 2 1-2 stone of sugar, turned into a stable to rest himself. To lighten his burden he allowed the bag to rest on the edge of a manger, but whilst he was momentarily off his guard it fell to the ground, and the rope by which it was slung over his shoulder tightened round his neck and killed him.

**Certificates of Death.**—An important resolution has been arrived at by the out-patient medical staff of the Ormond-street Children's Hospital, at the instance, we believe, of Dr. Buchanan. These gentlemen have unanimously agreed to refuse, in future, to give the usual form of death-certificate in the case of out-patients of whose actual decease they have no proof.

**Succedanea to Cod-liver Oil.**—M. Gubler, in his very useful book, "Commentaries on the new French Pharmacopœia," states that he considers the oils of squale et raie equal to that obtained from the liver of the cod. He even assimilates the latter to the livers of birds and mammalia, and maintains that the livers of the Strasbourg pies may be used with advantage, advising patients who dislike cod-liver oil to eat the livers of fattened birds.

**A vast** deposit of pure chloride of potassium has been discovered in a salt mine in Hungary. It contains about 50 per cent. of potassium, and must prove of great value to Austria.

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THE

## ADDRESS IN MEDICINE

DELIVERED BEFORE

### THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, AT OXFORD,

BY

William W. Gull, M.D. Lond., D.C.L. Oxon.,

Member of the Senate of the University of London, F.R.C.P., and Formerly Physician to Guy's Hospital.

Mr. President and Gentlemen,—I deeply feel the honor and responsibility which you have put upon me, by placing me here to-day as your exponent of the present position of Clinical Medicine. My task is difficult from the distinguished character of my audience, and from the imperfections of our knowledge in the subject of which I have to speak. I feel, indeed, as one about to undergo the ordeal by fire, the difficulty and delicacy of my task being so great that I dare not hope to escape adverse criticism.

You have been listening to learned discourses on the physics and physiology of living things, wherein the learned lectures have been able to instruct and satisfy the mind with details more or less capable of demonstration; whilst I have to admit that my subject lies on the confines of human knowledge, and that too often the highest effort of the clinical student is to arrive at some feeble probability, in the presence of uncertain, or even delusive, evidence.

Clinical Medicine, though a special department of knowledge, is so intimately connected with other sciences, that, when the claims of these are satisfied, it might seem that nothing would remain to it. This appears to me the present error of our schools. It would not, however, be too much to assert that, were it possible to conjoin in one human intelligence all that is now known of other sciences, such knowledge would be compatible with entire ignorance of the department of clinical medicine. As the physiologist must yet assert, that the phenomena of living tissues are not explained by their chemical composition, or, as the chemist himself has equally to admit, that mere isomerism may be no clue to chemical qualities, so the clinical physician knows that the phenomena of disease are not explained by the knowledge of healthy textures, nor by the action of healthy organs. Clinical work is a work by itself; and yet, if I may use the comparison, only so far by itself as one form of organic life may be considered separate from another. It stands apart, but has the most intimate relations to all that surrounds it. It is elucidated by the light of physics, chemistry, and physiology, yet is not comprehended by them as they now stand. In ages gone by Hippocrates had to vindicate the study of disease from the inroads of superstition; at the present day we have to guard it against assaults on the side of science, and need to watch lest we betray it by accepting a too chemical or physical limit to our thoughts.

We should all contemplate with great satisfaction such inroads of the collateral sciences upon medicine, as that at length medicine might have no separate existence; but this consummation appears to be, as yet, far distant, and must be so acknowledged. Happily, such is the extension of the human mind into Nature, that almost daily new regions are discovered; and the boundaries of the old are so extended as to require fresh subdivisions in order to bring them within the domain of thought. Formerly, the physician might have been able to comprehend all that then constituted the allied sciences of medicine; but that can never again be possible. His duty lies, therefore, in giving an exact and scientific character to the department which remains to him,—to investigate its phenomena, with that concentration which is necessary in every physical inquiry, and with all those aids which are afforded in increasing perfection by modern science.

It is not, however, to be overlooked, that even Science herself is apt to have her moments of dogmatism, and, by throwing the light of some particular inquiry full in our eyes, to blind us for the time to that which lies beyond. How often has medicine been thus diverted from her difficult path. A discovery in physics has made us for the moment no more than galvanic batteries, or a discovery in chemistry at another mere oxidising machines. To-day, however, we go to bedside work untrammeled by any exclusive theories of this kind, ready to investigate disease in every way that investigation is yet possible, and forming our judgment in no narrow spirit of a foregone conclusion. We have no system to satisfy; no dogmatic opinions to enforce. We have no ignorance to cloak, for we confess it; but we have to bring into the court of inquiry all possible evidence, and to decide upon it by the light of science and experience. They whose work lies more open to experiment and demonstration are apt to forget the difficulties we have to encounter, and the mental labor required in dealing with them with any measure of success. They would have us postpone these difficulties to a more convenient season, until, by the advancement of other branches of science, they could be undertaken with less risk of failure.

However gratifying and proper this might be, were the end of our knowledge contemplation only, and were there no motives to present action, yet, as we are in the midst of human suffering, and have some knowledge for its relief, it is plainly the duty of some, and worthy of the highest intellects, to apply themselves to this work, even though by so doing they may forego the immediate rewards which pure science so liberally affords.

Whilst thus asking for the unstinted recognition of clinical medicine as a scientific department, I am not forgetful of the obligations imposed upon us, nor that in it there lie problems, as yet, far beyond a scientific solution. No one can hope, even as the sciences now stand, and much less as they shall further advance, to obtain a foremost knowledge of them and of medicine at the same time. Yet such knowledge is to us of daily necessity. We must, therefore, refer our physiological difficulties to the physiologist, and our chemical questions to the chemist, and still admit that there remains an unlimited area of study for us, in tracing the causes and relations, and in recognising the presence, of disease. I would not be understood to say that the physician should neglect the sciences of chemistry and biology, and devote himself to the limited study of morbid phenomena. If any should desire to do so, the attempt would prove its impossibility. The interchangeable relations of things are such as to make necessary the most discursive operation of the mind, if it would successfully inquire into that which is most special. I desire only that that which is our proper work should have our entire energies, strengthened and directed by every collateral aid.

Whilst the biologist traces downwards the relations of the various forms of living things, and, breaking away, one by one, the barriers of separation between them, at length views them all as springing from a common germ, the student of clinical medicine, working in another direction, seeks opposite results. To him, one form of life absorbs and centralises all other forms. His object is to see the facts of human organisation in their most special relations. The very perfection of his work lies in this. It is not even man in general; it is in the individual man upon whom his attention has to concentrate. The stock whence he may have sprung, the circumstances of his birth, the time he may have lived, the diseases he may have undergone, the habits he may have acquired,—are all subjects to be brought into the focus of thought at the bedside, and made to clear up the problem of disease.

Medicine is a specialism; but of no narrow kind. We have to dissect nature; which, for practice, is better than to abstract it.* Every form of life has to us a value, but in an order the reverse of the generalisations of natural history. We desire to know what limits, specialises, and perverts. We study in order to distinguish, and not to classify.

Yet it is not the individual only that we have to isolate for the purposes of clinical study; we have further to inquire into the life of his several organs and tissues. These have each their own life, and, correlative with it, their own tendency to disease, and their specific power and mode of repair. To clinical medicine, therefore, the body becomes a pathological museum. In every part we recognise certain proclivities to morbid action; and the purpose of our study is to trace these tendencies to their source on the one hand, and to their effects on the other. Histology and anatomy are daily widening this fundamental department of medicine; and we may be sanguine that an acquaintance with the morbid changes to which the same parts are liable, where present in the lower animals (comparative pathology), will afford further valuable aid, as by it we shall have in some degree a dynamic test of the general tendency to these morbid states, in addition to that furnished by human pathology. A knowledge of these intrinsic tendencies to pathological change in the several organs prepares us beforehand to recognise their occurrence where, without such knowledge, the signs and symptoms which are present would convey no information. To know, for instance, that the brain, from the early period of adult age, in persons otherwise healthy, is prone, without obvious exciting cause, to the formation of tumour in its substance—to be aware of the probability of insidious *ramollissement* of the central commissures in younger subjects—often enables us to suspect these conditions, and to give weight to what might otherwise seem some unimportant ailment. As I name these two instances, I feel sure your clinical reminiscences will supply the proof of what I state, and read a sad page of suffering, death, and error.

There would appear to be some textures of the body endowed with an almost complete immunity from disease, whilst others are equally liable to it—a difference of which at present we cannot give a sufficient account. Both stand as glaring instances to warn us against the adoption of some of our current theories. There is, perhaps, no part of the body organized for more rapid cell-life, or that is more extensive or more vascular, than the mucous membrane of the jejunum; yet, with the exception as the choleraic and diphtheritic processes, it is almost exempt from primary organic changes—so much so that at the bedside, in considering the probabilities of disease in the abdomen, we have, on the one hand, to exclude this part from our consideration (except in mechanical obstruction,) and as necessarily to direct special attention to certain seats of lesion whence the trouble is likely to have sprung. Contrast the limited area presented by the lesser curvature and pyloric region of the stomach, the duodenum, cæcum, and rectum, with the enormous extent of the valvulæ conniventes, and compare the frequency and character of the lesions in the one with those of the others, taken together, and it is obvious how much our diagnosis of abdominal disease depends upon our acquaintance with the tendency of certain textures in the abdomen to morbid changes.

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* Melius autem est naturam secare quam abstrahere.—Bacon: "Novum Organum."

The investigations of morbid anatomy have thrown a flood of light upon the so-called acute idiopathic diseases. Formerly they were supposed to be of common occurrence; and the treatment of the day was adapted to their apparent violence. But how rarely now do we meet with a case of acute inflammation of the membranes of the brain, or of the peritoneum, or, indeed, of any other texture, which we cannot refer to some chronic lesion, or to some distinct cachexia; the only idiopathic part of the case being that which was formerly overlooked or unrecognised —some chronic tissue-change, unnoticed in the storm of acute disease to which it may have given rise.

Oken has said that all the tissues are nervous, and bone is hardened nerve. I shall not discuss this assertion on the present occasion; but no doubt, modern physiology and pathology are advancing the evidence that whatever is living has nerve-quality in it. The highest expression of this quality is conscious intelligence; the lowest it is, from the nature of the case, impossible to mark. This much, however, it appears important to recognise clinically: that morbid brain-force may give rise to a variety of disorders, apparently distinct from their original cause. There is a neuro-pathology from the brain to the tissues, as there is a reverse order of disturbance from the tissues to the brain. If we trace the history of morbid brain-force through the various members of a family, we shall often recognise a great variety of related phenomena, which, in nosological classification, are separated and considered as distinct. The intellectual disturbance in one, may appear as epilepsy in a second; as mere dyspepsia and so-called acidity in a third; in a fourth, as some peculiar neuralgia; in a fifth, if a female in many varieties of capillary disturbance, as amenorrhœa, vicarious menstruation, hæmatemesis, or even hæmoptysis; in a sixth, some part of the intestinal tract, the colon chiefly, may appear to be the recipient of the morbid nerve-process, and the patient be tortured with fears of a tumour. And a tumour indeed there may be—though a mere phantom, yet calculated to mislead the unwary. Nor does this list exhaust the catalogue of these strange vagaries. It would seem as if sometimes this morbid brain-action expended itself upon the voluntary muscles, which, if of the abdomen, may be shaped into forms that defy diagnosis and bewilder the most cautious.

It might be thought unnecessary for me to point to this strange field of pathology, which has long been recognised as in part connected with hysteria, but I have reason to think our views on the subject are still wanting in distinctness, and that the term hysteria, as now understood, does not include all I here intend. These morbid conditions occur as essentially, if not so frequently, in the male as in the female, though the form of them may be determined by the sex. As if in different individuals, different portions of grey matter were the seat of the same kind of morbid action; the equivalent of mental disorder in one occurring as colon disorder in another, and so on. And, besides these mere functional disturbances, the history of medicine and my own individual experience supply instances of actual tissue changes which admit of no explanation until thus looked at; and, I need not add, such cases are entirely distinct from feigned and fictitious disorders.

The flatulent dyspepsia of the student, the tears of the distressed, the dry mouth of the anxious, and the jaundice of fright, daily remind us how far the cerebral influence extends, and physiology will hereafter teach us to trace the steps whereby these effects are produced. As there is no explanation of laughter when the axillary nerves are tickled, so there seems to be none of the morbid fears which oppress those who are the subjects of some affections of the colon, and who weary our patience with their doleful complaints. Yet surely we have no more ground to deny the reality of the one than of the other, though we must at present refer both to some ultimate fact of our natural history. "As face answereth to face" by mysterious sympathy, so do these and other peripheral impressions excite or depress, in an equally mysterious way, the subjects of them.

I cannot turn from this hasty glance at the idiopathic pathology of the tissues without mentioning how much clinical medicine has gained by recognising the relations of the tissues to time. The wise man says, "There is a time to be born, and a time to die." What the physiological limit of the latter may be has not been determined, but at the bedside its presence has often to be recognised and distinguished from that of removable or remediable disease.

Abercrombie was amongst the first to point out that the paralytic affections of age were due to senile changes in the tissues; and more recently, the convulsive affections of otherwise healthy, but aged people, have been included in the same category. The epileptic attack of the old man is an evidence of failing power as his paralytic seizure is an evidence of failing tissue. Though the actively growing organs of the child contrast in a striking manner with the same in decay in the old, there is yet, in some respects, a similarity between the diseases of the two periods of life, like the tints of the rising and the setting sun. In the first period, the organism has not acquired its forces; in the latter period, it is losing them. Infantile convulsions, and senile convulsions; infantile diarrhœa, and senile diarrhœa; infantile eczema, and senile eczema; uric acid deposits in childhood, and uric acid deposits in age, may afford illustration of the truth of my statement.

Time, moreover, acting differently upon different parts of our organism, often performs a kind of pathological dissection, exposing the inherent weakness of entire organs, or parts of them, and giving rise to diseases, for which at present we have often no name but that which designates some prominent symptom. This process of decay, due to time only, occurs at almost every period of life, according to the constitution of the individual. The fatty degeneration of muscular fibre, occurring in the children of certain families, affords such an illustration, and we have yet more striking ones in the progressive muscular atrophy, which occasionally exhibits itself from primary changes in the nervous system, in equally young subjects. Senile changes may thus occur in childhood, as the ephemera is born for the day. My thoughts have been specially directed to this subject of late, whilst passing in review the facts of locomotor ataxy. The condition of the nervous system which most commonly gives rise to this form of unsteadiness of gait is plainly one of decay, like baldness, or greyness, or the occurrence of the arcus senilis. It occurs to individuals of particular families, in which other forms of nerve-degeneration are prevalent. It happens to be limited almost entirely to males, at the middle or after the middle period of life; and, if we may venture to draw general conclusions from the few observations that have been made post mortem, is connected with fatty degeneration of the posterior columns of the cord; not, however, limited to these, but associated with changes of the like kind in other parts of the cord, and in the brain itself.

My friends, Mr. Lockhart Clarke and Dr. Hughlings Jackson, endorse the opinion first put forward by Duchenne, and subsequently maintained by Trousseau, that this locomotor ataxy is due to disease of the spinal marrow only; but I am disposed to think that they arrived at this opinion against clinical evidence, and partly biased, though unconsciously, by the way we were first taught to dissect and think about the nervous system.

It is only fair to English pathologists here to state, that this form of disease has long been known to them. Matthew Baillie regarded it as the most common form of paraplegia, and had an anatomical explanation of its peculiarities, which, though certainly not applicable, proves that, with his usual acumen, he had investigated its post-mortem anatomy. His theory was that the malady arose from a morbid effusion of cerebro-spinal fluid, which, when the patient was erect, gravitated into the lower part of the theca vertebralis, and, by pressing upon the cord, rendered the patient unable to steady his movements; whilst, from the same cause, these became free again when he was placed in a recumbent position. I quoted these observations of Baillie in the year 1849, and took occasion then to call the malady encephalic paraplegia. It is probable that this was too restricted a term, as is that of locomotor ataxy; and that in our consideration of the special disease, we must recognise a general diminution of nervous power from falling nutrition, as well as special lines of more unequivocal decay, most marked in the posterior columns of the cord. In support of this opinion I may state that ataxy alone occurred but three times in fifty cases referred to by Trousseau. Notwithstanding this, he draws the characters of the disease which he would typify from three cases, and not from the forty-seven others in which there was evidently disease of parts of the brain, as of the cord. If, however, all that has yet been done still leaves the question of the lesion occasioning this form of paralysis in dispute, one suggestive fact remains—namely, the singular isolation of the posterior columns of the cord by the degenerative process. This fact appears to indicate that the affected structures have their own vitality, and probably, therefore, a separate function from that of adjacent parts. Todd maintained this seperate function on other grounds, and concluded that the posterior columns were merely commissures. This theory seems the more probable from the facts now alluded to, inasmuch as textures having such a function may have a lower vitality than others which are more essential. This supposition is strengthened by what is observed under extreme inanition, it having been proved by the well-known experiments of Chossat that the nervous centres resist atrophy more than other tissues. Related to these intrinsic morbid changes, whether local or general, are the cancerous and tubercular affections, and the universal liability of the tissues to that perverted process of nutrition which we call inflammation. Although, for practical purposes, it is convenient to intensify the differences between cancer, tubercle, and the inflammatory process, we have abundant evidence of intimate relations between them. Thus, the children of parents dying of cancer are not rarely tubercular, and those of the third generation are liable to various forms of chronic inflammation; whilst in the same families are healthy individuals, in whom we can discover no evidence of any special morbid tendency. It is not improbable that that which seems most special to us in cancer and tubercle may depend more upon gradation than change of diathesis, and that both are allied to more common degenerations.

In tubercular phthisis this has long been felt and acknowledged. Those who have given most attention to the subject (and I could name no one whose experience would have more weight than that of the late Dr. Addison) have had to confess that the larger their observation, the greater became their difficulty in drawing a line of demarcation, limiting tuberculous from simply inflammatory productions. No doubt many of the errors of prognosis in phthisis, some wilful, some unwitting, arose from assuming a distinction which does not exist, except in extreme cases where, as the logicians would say, the *quantum* passes into the *quale*. Although it has been observed that the scrofulous diathesis of early life may show its special characters in age, still we have, on the other side, frequent proof of a change of diathesis to that which is malignant; and your experience will, I am sure, confirm my statement that the tubercular peritonitis of childhood corresponds with great strictness to the cancerous peritonitis of age. It is probable that cancer is nearer to the simple degradation of tissues than tubercle. It appears to be more independent of an external exciting cause; and although in its structure there is an appearance of vital activity, it has no correlation with healthy organic processes, but is a mere eddying off and separation from the organic cycle. A closer inquiry into the local origin of cancer, and of the mode whereby the system becomes infected by it, are yet desiderata. The tendency to infect the body generally may, after all, not be dependent upon a more marked cancerous diathesis, but upon local circumstances only. Something analogous appears to exist in the infecting and non-infecting chancre; for though, according to some authorities, one is essentially local, and one as essentially infecting, yet it appears certain that even the infecting kind has not always the same infecting power.

In passing from the idiopathic or intrinsic morbid conditions to such as arise from the accident or *ab extrâ*, the fevers chiefly claim our notice. In the elucidation of these, small-pox stands for first consideration; since through vaccination, we have it clearly demonstrated, at least for this one form of fever—and it seems but fair to infer the same as others,—that recovery and subsequent immunity are produced by a process of impregnation and assimilation, and not, as was early believed, and is still by some maintained, of elimination. The old theory of depuration, though true of gross chemical poisons, as lead, or mercury, or arsenic, appears to have no application to those operations which take place in the body, in contagious diseases, as the effect of organic poisons. After any one of these, the organism is not restored to its former condition, as if any poison had simply been cast out; but there is notoriously a residual and permanent effect, which has been induced under the superficial disorder; this effect being shown by permanent indisposition to a repetition of the same morbid process. Unfortunately for science, the phenomena of fermentation have been assumed in explanation of what takes place under these circumstances; and by the theory of zymosis we are carried back to the days of ignorance, when concoction and maturation were made to explain whatever was obscure. We discover, however, at the bedside, nothing in the phenomena of febrile disease proper to zymosis. As well might we call the evolution of the germ after impregnation by such a name. The physiological disturbances induced by any one of the fever-poisons—namely, the excess of heat, the rapid waste, the quick action of the heart, the altered functions of secretion and excretion, &c., the so-called symptoms of the disease—are but the outward effects common to the class, and only so far peculiar to each as they may vary in time and intensity. That which really constitutes the specific character of each is the attendant tissue-change, which when completed according to the special poison, is followed by convalescence.

If this be in any degree an approach to a true conception of these diseases, it follows that the object of medicine must be rather to limit the violence of attendant symptoms, than, with our present knowledge of therapeutics, to aim at arresting or neutralising their specific processes. Had anyone formerly been asked the remedy for small-pox, he would hardly have seriously supposed the answer to be the poison of small-pox itself. Yet so it has proved; and from this experience we have learned that help may come precisely in the opposite direction to that looked for in our theories, and we obtain a striking proof of the truth of Bacon's aphorism; "Natura non nisi parendo vincitur."

Yet, notwithstanding this teaching, pathology still persists in looking in another direction; and therapeutics are governed by the idea that disease is an entity which must be combated and cast out. I fancy that the habit of calling these and similar affections blood-diseases insensibly fosters the idea of depuration. Now, though I am not disposed to stir up a discussion between *solidism* and *humoralism*, I cannot but express my conviction that the susceptibility to the various contagious fevers no way lies in the blood, except so far as this may be a channel through which the poisons reach the tissues; and that it is in these, and especially in the nervous tissues, that the true fever processes begin and end. The facts of habit, such as that of taking opium or using tobacco, the facts of acclimatisation, and of the commoner experience of our life, whereby the nervous system becomes accustomed and indifferent to continued sources of irritation, render such an opinion the more probable; and a confirmation of it is gained by that enduring effect which ensures against a repetition of morbid actions.

Were I to give liberty to my imagination, I might perhaps trace here a much more extensive law of our nervous organisation, whereby that which is new excites, and that which is old becomes indifferent. For my own part, the views which have been put forth as to syphilisation have, on these grounds, seemed to deserve the fullest consideration; and, though I have not experience to set against the adverse conclusions of some who have made the subject a matter of experimental inquiry, I feel that we cannot set aside the more extensive experience of those who have asserted its success.

I cannot conclude these general remarks on some difficulties which now occupy our minds in respect to pathology without alluding to the vexed question of rheumatic fever. Is this state due, or is it not, to a *materies morbi?* Further, have we any grounds for assuming that such *materies morbi* is lactic or acetic acid? I put these questions thus explicitly, because it seems to have been settled, upon mere authority, that they may both be answered in the affirmative. I say authority alone, not forgetting the experiments which have been made on animals in proof of this theory since such experiments appear to me to prove only this, that the acids named, entering the blood may cause endocarditis and some other pathological changes simulating those of rheumatism; but I cannot recognise in them the rheumatic state, as I am acquainted with it at the bedside. There are, so far as I know, no analyses of the blood in rheumatism which show that it differs from normal blood in respect of its acidity. The theory of an acid *materies morbi* appears to be supported chiefly upon the excessively acid secretion of the skin in this disease, and the increased acidity of the urine. But neither of these can be considered in any degree characteristic; for not only in the worst forms of the rheumatic process is the secretion of the skin not acid, but alkaline, but in conditions of the system totally dissimilar from rheumatism—as, for instance, in phlebitis, and especially in that form following injuries to the head, as well as in arterial embolism—we often meet with excessive acid sweating, misleading to a false diagnosis those who believe this to be characteristic of rheumatism. Notoriously, a proper function of the skin is to secrete, and probably to form in itself, lactic and acetic acid. Under different kinds of irritation this becomes excessive; but I know of no facts to show that this excess indicates a special pathology, or may be regarded as a salutary process, whereby the system is relieved of a *materies morbi*. In so supposing it, we seem to be misled by the same fallacies as before the time of Sydenham, misled practitioners in the treatment of eruptive diseases. I confess to a strong sympathy with those errors; and though my reason is convinced that they were errors of the most dangerous kind, I cannot but excuse them, and admire the genius and courage of Sydenham, which enabled him to detect and correct them.

If, failing the evidence of the cutaneous secretion, the rheumatologist adduces proof of an acid diathesis from the character of the urine, must not the force of his argument be abated by the admission that urates replace urea in a large number of other morbid conditions, so that we cannot attach any specific value to this fact, the general significance of which will be better appreciated by the physiologist, who will see in the presence of uric acid and the urates a debased condition of organic waste, common to the life of inferior organisms?

To pass, however, from these desultory observations, which the present position of pathology has suggested, the subject of diagnosis claims a few words. We must all admit that diagnosis ultimately rests upon an exhaustive pathology. Without a knowledge of what is possible in disease, diagnosis must be defective, and is, therefore, in that degree defective at the present day, since it is plain that we are unacquainted with many pathological states, if, indeed, we be fully acquainted with any. Moreover, a knowledge which might seem exhaustive to-day, might, by the changing circumstances of the world, be defective to-morrow. Without raising the question, whether disease has within historical periods changed its type, it may be maintained, as was long ago pointed out, that the pathological tendencies of the body do vary with the genius anni, as witness the changes in epidemic disease. Within our present experience, cholera has afforded us new pathological questions, which are not yet solved; and strangely, side by side with it—to make the contrast more impressive—diphtheria has revived; laying before us, as if to teach us how feeble our pathological science is, two opposite conditions: two diseased mucous surfaces—one digestive, one respiratory—from the former of which, by mysterious inversion of its normal forces, the salines and water of the blood may be fatally diffused, and from the latter, as by a kind of morbid polarity, the fibrine only is poured out.

Although the perfection of diagnosis cannot be reached till we have a perfect pathology, we have to confess that it falls behind the pathological knowledge we at present possess, as the revelations of the post-mortem tables abundantly confirm.

And this brings me to the second principle of diagnosis, a knowledge of the probable in disease. Of this, experience alone can inform us, and experience of the most varied kind. But when so varied, and supported by a large knowledge of pathology, it often enables us, as by prophetic insight, to diagnosticate conditions, which neither direct physical examination, nor the most systematic arrangement of symptoms, could explain. These suggestions are amongst the best fruits of experience—of that experience which is able to anticipate causes, and from causes their chief effect. The advancement of diagnosis depends upon the capacity of medicine to make these anticipations with increasing certainty, which, though *anticipationes mentis*, are truly *interpretationes naturæ*. To illustrate these remarks, what could I better quote than the clinical history of thrombosis and embolism? What mysterious obscurity, until recently, involved the phenomena of which embolism was the cause; but, thanks to Kirkes and Virchow, when once the pregnant fact of embolism in vein or artery is recognised, not only present facts arrange themselves in order, but we are able to anticipate the possible occurrence of others, and, by anticipation, often to prevent them. Symptoms and physical signs may supply us with abundance of clinical facts; but, until the one great fact be recognised in such cases, we can make no step in diagnosis.

Nor does this instance by any means stand alone; for wherever, from the nature of the case, we are unable to make a complete physical examination, as must occur in diseases of the brain, and as often occurs in diseases of the abdomen, pathological inference, or pathological anticipation, has to supply a meaning to other portions of the evidence. In brain diseases, this method of interpretation comes largely into play; and the neglect of it has much to do with the obscurity in which, at the bedside, these diseases are still involved. It is often impossible to form any opinion whatever of the malady under which a patient with brain disease may be laboring, from an inquiry however acute, and however complete, into the mere statical facts, as they at the moment present themselves. The attempt to do so is perhaps more likely to lead to error than to truth; a fact which, if I be right in the statement of it, shows of how little value mere symptoms are in the diagnosis of such diseases.

Abercrombie felt this to its full extent, and one of the objects of his treatise on cerebral disease was to make it clear, and to warn us against future attempts in that direction. A perusal of his writings will leave upon the mind the impression that the most diverse affections of the brain may, at the bedside, present the same symptoms; that in the most extensive lesions there may be none at all; or that the whole catalogue of symptoms may appear without any lesion. But the feeling of despair which such a perusal formerly induced is now in great part dissipated by the success with which the inquiry can be made in the direction pointed out. Admitting that we shall never diagnosticate cerebral lesions by their symptoms; partly, because different lesions may produce the same symptoms if the seat be the same; partly because there appear to be surplusage portions of brain-tissue, as in the hemispheres, where lesions cannot make their presence known; and partly because in that monster disturbance epilepsy, we may have a variety of states simulating organic lesion,—we betake ourselves again with renewed energy to the study of morbid anatomy and pathology, which first caused the confusion by disturbing our ignorance, feeling assured they will at last afford us a full clue to the difficulty. To a large extent they have already afforded this clue. To begin with the last fallacy I have named, I may remark that we are better acquainted than formerly with the various forms of the epileptic state. A better pathology has prepared us to recognise in this condition a great variety of effects. Todd drew attention to epileptic hemiplegia; and in the same subjects there occurs also a remarkable form of coma, which has often led to the supposition of effused blood, or tumour, or abscess—suppositions which have been falsified by the recovery of the patient. Whilst our notion of epilepsy included nothing more than a convulsive state with unconsciousness, numerous errors in diagnosis must have occurred from this source alone. It now represents to us a condition of nerve-force, in which may occur not only the common phenomena of epilepsy, but coma without convulsion; paralysis following convulsion; sudden and transient mania, or an approach to it; as well as, according to Trousseau, some strange forms of neuralgia. A knowledge, therefore, that a patient is liable to epilepsy, or comes of a family in which such a state has directly or indirectly occurred, must make us pause in our diagnosis, and thus save us from a precipitate or erroneous conclusion. The proneness of the aged to epilepsy is a fact probably not sufficiently borne in mind in the diagnosis of these cerebral disorders. As to the second fallacy, when disease is situated in what may perhaps be called, without misuse of the term, the surplusage portion of the cerebrum or cerebellum, we are often led to suspect its presence, and as often correctly to infer its nature (and avoid the third fallacy), from a knowledge of the fact of surplusage, and of what is probable under collateral circumstances, though the symptoms of organic disease may be apparently of an insignificant kind. For instance, headache with occasional bilious vomiting in a young and healthy adult—tumour; (?) the same symptoms, with chronic suppuration about the ear, or in some distant part—abscess; (?) nearly the same symptoms, with syphilitic cachexia—syphilitic affection of the brain (?) This is the merest outline, but the drawing is true to nature. May I say, once for all, that any peculiar shape of head, large or small, has, like the epileptic brain, long been admitted to defy diagnosis. Further, how much have we not gained in the diagnosis of cerebral disease by the known tendency of renal cachexia to induce chronic or subacute cerebritis, and of embolism to cause plugging of the vessels?

In turning from the diseases of the brain to affections of the chest, we find that we are here able to combine our knowledge of the possible and the probable with direct physical signs; and consequently the diagnosis of chest-affections has very steadily advanced. Old errors, however, still linger everywhere and a true dynamic estimate of lung-lesions is yet a desideratum. This must be supplied by improved interpretation of physical signs through attendant physiological conditions. The word phthisis, which has now too often a specific value, will dilate so as to include a whole genus of chronic affections, which, when duly recognised and classified, will afford more secure grounds of prognosis, and spare us the perusal of worthless records of so-called consumption cured.

In the diagnosis of abdominal diseases, we want an increase in the number of our more cardinal facts; such facts, for instance, as that the enlarged gall-bladder changes its shape under contraction; or that of the two characteristic notches in an enlarged spleen; or that of the peculiar position of the colon in enlarged kidney, &c. At present our diagnosis is mostly one of inference, from our knowledge of the liability of the several organs to particular lesions; thus we avoid the error of supposing the presence of mesenteric disease in young women emaciated to the last degree through hysteric apepsia, by our knowledge of the latter affection, and by the absence of tubercular disease elsewhere. We infer alcoholic changes in the liver from the aspect of the face, mottled by venous stigmata and the yellowish conjunctiva, even without any direct knowledge of the state of the liver, or the habits of the patient. We suspect a cancerous disease of the peritoneum in the aged from the pain with effusion. It is obviously from the perfection of physical diagnosis, aided by pathology, that we must look for the advancement of medicine. The feeling of the patient, so-called symptoms, are of little value taken by themselves; often, in fact, their mere number and variety are a proof of the absence of disease, and it is admitted that they always need interpretation through physical inquiry.

The eye, the ear, the touch,—and chemistry replacing the other two senses,—are impressed into our daily service, and we may hope that what the ophthalmoscope has effected for the eye, these other means may do for other parts. To chemistry we owe much, but there are two wants we ought to express. We want analyses of the *residuum* of the urine, especially in disease, in which we may hope to discover new elements for diagnosis; and we further want ready clinical means for recognising what has been discovered by more elaborate processes. Our hope in the direction of chemistry ought to be unlimited, seeing that changes in the urine must correspond to intimate changes in the organs and textures.

To return, however, to physical diagnosis; the fidelity with which the characters of a disease are often marked in its tissue changes must excite equally our wonder and attention. It may be no more than the tint of the morbidly vascular part —a condition apparently the most trivial and accidental; and yet it returns with unerring certainty under the like conditions as our guide to diagnosis. The multiplied generations of the vaccine vesicle from one lymph, maintaining to this day, in all respects, the characteristics of that which first arose under the hand of its immortal discoverer, is one of the strongest evidences that I could adduce of such fidelity, and may well encourage us to the investigation of physical signs as an evidence of the pathological causes to which they are due.

But our diagnosis is not always of a single morbid state. There may be grafted upon some special diathesis, as of tubercle or of gout, the effects of alcohol, syphilis, mercury or miasm. No doubt even more complicated instances could be given, but this will suffice to show the character our diagnosis must take before we can proceed to treatment.

As health is our object, or as near an approach to it as circumstances admit, *hygiene* and *therapeutics* claim the last and highest place in our thoughts. Happily at length, hygiene has gained strength enough to maintain an independent vitality as a science. To know and counteract the causes of disease before they become effective is evidently the triumph of our art; but it will be long before mankind will be wise enough to accept the aid we could give them in this direction. Ignorance of the laws of health and intemperance of all kinds are too powerful for us. Still we shall continue to wage against them an undying crusade; and truly we may to-day congratulate ourselves that no crusade ever called forth more able and devoted warriors than are engaged in this.

The diseases of the young are in large part preventable diseases.

Epidemics carry off in great proportion the healthy members of a community.

It is futile, if not worse, to speak as some do of leaving diseases to work out their own ends, as agents of a moral police. Medicine allows no such prerogative to our judgment. It is enough for us that diseases prevail, to stimulate our best efforts for their prevention, without our asking a question beyond.

Nothing can stimulate science more to the investigation of therapeutics than the feeling that the diseases calling for treatment prevail in spite of our best efforts to prevent them. Where hygiene fails, properly commences the work of therapeutics; but it is painful to find ourselves occupied in making feeble and often useless efforts to combat the effects of a poison which might perhaps have been stamped out in its beginnings.

The strength of modern therapeutics lies in the clearer perception than formerly of the great truth that diseases are but perverted life-processes, and have for their natural history not only a beginning, but equally a period of culmination and decline.

In *common* inflammatory affections, this is now admitted to be the all but universal law. By time and rest, that innate *vis medicatrix*,

> "Which hath an operation more divine
> Than breath or pen can give expression to,"

reduces the perversions back again to the physiological limits, and health is restored. To this beneficient law we owe the maintenance of the form and beauty of our race in the presence of all that tends to spoil and degrade it. We cannot pass through the crowded streets and alleys of our cities without recognising proofs of this in the children's faces, in spite of all their squalor and misery; and, when we remember what this illustration in all its details reveals, we may well take heart, even where our work seems most hopeless. The effects of disease may be for a third or fourth generation, but the laws of health are for a thousand. Bearing this in mind, I have often had occasion to remark in practice how little we can estimate the reparative powers, however able we may be to discover diseases. This is, perhaps never more striking than in some chronic affections, which, having resisted all our efforts at cure, may have been abandoned in despair, or at length placed under some indifferent treatment. Under these circumstances, with what interest have most of us day by day watched the lessening deviations of disease, until the balance of health has been again all but restored, unstable though the equilibrium thus gained may, from the nature of the case, have been.

Therapeutics were at one time directed only by two ideas—of *strength* and of *weakness*. *Sthenic* and *asthenic* expressed in general terms the morbid conditions requiring treatment. Of the same import, but of older date, were the thoughts derived from the then current theory of *phlogiston;* and the terms *phlogistic* and *antiphlogistic* still linger in medical treatises. From a better physiology, however, we have learnt that perverted functions in disease, however exaggerated, are due to failure, and not to excess of the vital powers.

Organic strength lies nowhere but in the vital circle of nutrition and function.

A rapid pulse and active delirium, like the increase of the animal heat, are signs of deficient *balance-power*—a power which we have been so slow to recognise in living organisms, that we have not yet an accepted expression for it. How different seems to us at the present day the value of the symptoms which were formerly considered indicative of strength.

In an increase of temperature we see but increased waste. Every degree of rise in the thermometer, indicates to us a corresponding decline in that nervous control which regulates the functions in health; and this decline is the more important, if it be true in complex organisms, as it is in simple machines, that this combination which limits the mere working forces is the highest and most characteristic. The terms "strength" and "weakness," are valueless, as expressive of conditions so complicated as those of disease. They are deduced for the most part from the feelings of the patient, and a few superficial phenomena. They are empty idols, impressive only by the extent of their emptiness. Surgical treatment was greatly advanced by the imaginary discovery of the *sympathetic powder*, which being placed upon the instrument inflicting the wound, the injured part, by time and rest, was allowed to recover under the simplest means. We need now to import into medicine a large part of the best surgical principles so deduced. The surgeon is contented to place a wounded part under the conditions of physical and physiological rest, and after attention to hygienic conditions, the *res non naturales* of our forefathers, to abide the result. This, no doubt, expresses the largest part of our treatment of common acute disease. We now know that we cannot directly control the morbid processes in pneumonia, pleurisy, or pericarditis; we know further that the means formerly considered essential to the cure of these diseases, tested by better clinical observations, were either useless or pernicious; that instead of favoring the plastic processes in inflammation, whereby the normal decline of the disease was promoted, the effused material was often more or less degraded and spoilt by the treatment employed, and remained in the affected parts, either as a foreign body, or in different degrees approaching thereto.

And this must always have been so, had we continued to regard these effusions as simply foreign products; but as soon as we perceived their physiological relations, and that they had a life like the tissues from which they sprang, they took a different aspect, and it became our duty, often without much interference, to stand by, and watch this course to the end. With an audience like the present, so capable of supplying the proper safeguards to these expressions, I am not likely to be misunderstood, as if the duties of the physician were of a negative kind. There is a sufficient sphere for our activity, in ways too numerous for me to mention: in the relief of symptoms where the lesion may be left to its natural course—in the treatment of the lesion itself, where we have means adapted to it, and of these we have many—in maintaining the health when the degeneration or lesion is incurable. Time would fail me, if it were otherwise proper in this place, to enumerate and enlarge upon the valuable applications of medicine. The discovery of disease—the alleviation of its symptoms—the obviating its inroads—the placing our patient under favorable conditions to bear it—the guarding him against what would be injurious—and the administration of remedies often in themselves effectual for its removal—are surely services of no unimportant kind.

There is probably no human work which daily confers greater good upon society than does ours; and when we consider that from the ranks of our profession the chief cultivators of modern sciences have sprung, whether we seek of botany, comparative anatomy, chemistry, physiology, biology, hygiene, or social science, we may feel some justifiable pride and be encouraged in spite of all failures to go on, assured that our future must be one of ever-increasing usefulness and honor.

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THE

# ADDRESS IN PHYSIOLOGY

DELIVERED BEFORE

## THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, AT OXFORD,

By George Rolleston, M.D., F.R.S.,

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Mr. President and Gentlemen,—I hope that you may think that the fact of my local connexion having put me into the honorable office of giving this address, justifies me in adopting for it an arrangement, and choosing for it a set of topics which that local position suggested to me. If I were to say that I had chosen for the subject of my address the bearings of the studies which it is the business of my life to teach here upon the interests of the Medical Profession, I should be giving my address too ambitious a title; it is but with some, and with few, of those bearings that I propose or feel myself competent to deal. I shall limit myself firstly by selecting only such topics as, having been pressed forcibly upon my own attention in my own peculiar course of labor, have come to assume in my own eyes at least a considerable importance, and have seemed in consequence not unlikely to prove possessed of interest for others also; and I should limit myself secondly by abstaining from going overground which has within my own knowledge been occupied by persons who have on previous occasions stood in the position which I now occupy before you.

Let me then throw the heads of my address into a few short phrases, and say that I propose, with your permission, to speak firstly of the bearing of certain portions of the very extensive range of subjects comprised under the titles Anatomy and Physiology, upon certain points and problems which come before the attention of the Medical Practitioner in the course of his actual duties; and secondly, of the illustration which some of the conclusions recently come to in Biological science cast upon the validity of certain principles which are ordinarily looked upon as authoritative canons for the regulation of the reason in medical, and, indeed, in other investigations. Under the term biological science is included besides pure physiology, human and microscopic anatomy, comparative anatomy also: and in this place, as your visit to the museum will have convinced you, we give considerable, but, as we hope, not undue prominence to this latter branch of study. I propose to speak of the bearings of biology on medicine in each, but, owing to our local speciality just alluded to, specially in the last-mentioned of these four departments. And I must ask you to bear in mind that the very constant reference which I shall make, if not in my address, at all events in my notes, to the works and writings of others, is in like manner to be explained by my wish to have a distinctive coloring given to this address by the local peculiarities of the great educational centre in which we are assembled. For one of the most distinctive peculiarities of this ancient university is the formation within its precincts of such a library of modern science as will shortly have no surperior, and but few rivals, in the world. This we owe to the well-advised administration of the funds of that famous physician, Dr. Radcliffe; and it is from a wish to make a sort of acknowledgment of the obligation which medical and other sciences owe to him and his trustees that I shall so constantly, at least in print, refer to the chapters and pages of the innumerable books which their enlightened munificence has put here at the disposal of the student. It is not, I can assure myself, from any irritable anxiety to impugn or depreciate the worth of others that I have so constantly consulted and specified their pages; nor, I trust, have allowed myself to be tempted into the unpardonable fault of using, or rather abusing, a great opportunity, by making upon it a petty personal display. Rather have I felt it to be my duty to occupy this hour as you occupy your lives, in doing what it may be possible to do for the good of humanity. Your presence and your example make me feel that any other course would be but impertinence; and I have, therefore, kept constantly before my eyes Bacon's sentence in condemnation of a parade of empty, useless erudition:—"Van est omnis eruditionis ostentatio nisi utilem operam secum ducat."

The title of Niemeyer's work on medicine, the seventh edition of which has recently appeared and come into my hands will furnish me with an excellent text for my first head—"The Connection and Interdependence of Medicine and Physiology." That title runs thus:—"Lehrbuch der Speciellen Pathologie und Therapie mit besonderer Rucksicht auf Physiologie und Pathologische Antomie, von Dr. Felix v. Niemeyer. Siebente Vielfach vermehrte und Verbesserte Auflage. Berlin, 1868." From this work I will take my first illustration of the nexus and connexion of which I have to speak; and I believe that though I am obliged to dissent from the explanation therein given of the facts I shall refer to from its pages, the explanation which they seem to me to lead or rather demand, shows even more clearly than the one there given, the intimacy of the alliance which is now becoming so close between the experimentalist and the practitioner. In writing (Vol. ii. p. 334) of a form of neuralgia, the pain of which those who have suffered from it themselves, or indeed have even seen others suffering from it, will allow is not exaggerated by the application to it of the words, "fast unertragliche." Niemeyer remarks that the physiologists, Dubois-Reymond and Dr. Möllendorff, refer its origin to the existence of a dilated state of the arteria carotis cerebralis. The state of dilation these authors explain by a reference to certain facts in the physiology of the cervical sympathetic as discovered now some seventeen years ago by Bernard, and elucidated still further by Waller Budge, and Brown-Séquard. And in a like spirit, or at least by a reference to certain anatomical facts in the arrangement of bloodvessels, which he supposes to become dilated and distended, the great Göttingen anatomist, Henle (cited by Niemeyer ii. 319, 339), explains the causation of certain neuralgiæ. The neuralgia which is so apt to haunt the sixth, seventh, and eighth intercostal spaces of the left side, he has suggested may be explained by the peculiar arrangement of the left or smaller azygos vein in that region; and the greater relative frequency of neuralgia of the first than of the second and third divisions of the fifth cerebral nerve, he refers, to the greater quantity of dilatable veins with which it is beset in passing from the inner to the outer surface of the sphenoid. Now I venture though with some diffidence, as I find myself in opposition to such names and authorities, to dissent from the explanations there given of these facts, which I suppose must be acknowledged, with perhaps an exception as to the relative statistical frequency of neuralgia of the first division of the fifth, to be only too real facts. By laying the physiology of the cervical sympathetic alongside of the natura history of an attack of neuralgia, we shall be enabled, I believe, to see that there are stages in each corresponding with stages in the other, but that it is a stage of spasm in the one and not a stage of relaxation and congestion, which corresponds with the stage of pain in the other. Stimulation of the upper cervical sympathetic produces more or less immediately contraction of the bloodvessels of the head and dilatation of the pupil, and diminution of the temperature. This is its first line of operation, resulting in what Brown-Séquard ("Lectures, Phys. and Patho. of the Nervous System," 1860, p. 142) calls "Decrease of Vital Properties." But after a while the reverse of all this takes place, and vessels dilate. Now whether this be so in consequence of exhaustion, as is ordinarily said (Funke, *e.g.*, "Physiologie" ii. 772), or not; as Dr. Loven, who says (Ludwig's "Arbeiten, Phys. Anstalt," Leipzig, 1859, p. 1011) that the sympathetic is not so easily tired, thinks is of no consequence, or little consequence, as the fact of the sequence of events is accepted as I have stated it on all hands. Indeed, similar alternations of alteration in the calibre of vessels take place, as is well known, in the calibre of vessels "spontaneously," as the phrase goes, and whether rhythmically or not still chronometrically in relation to the needs of the animal and its tissue, in the arteries of the rabbit's ear, (Funke, l. c. ii, 771, citing Schiff and Callenfels,) in the veins of the bat's wing (Wharton Jones, Phil. Trans. 1852), in the arteries of the frogs web (Lister Phil. Trans. 1858, p. 653.) And the occurrence of these latter alternations makes the occurrence of the former more intelligible. Now a similar alternation from a stage of contraction of bloodvessels, of coldness of skin, of shivering, of total absence of heat, redness, swelling, or tenderness, to one of increased circulation, swelling, heat, and tenderness, constitutes two stages in an attack of neuralgia, homologous with the two described as occurring in irritation of the sympathetic. It is rare, I believe and Dr. Anstie teaches (Stimulants and Narcotics) for pain, as opposed to tenderness, to persist after congestion; and pain in tissues differs as much from tenderness as remorse in a conscience differs from tenderness in that organisation, and the two things are well nigh equally exclusive the one of the other in both cases. Perhaps the mere apposition of the two sets of occurrences side by side, is sufficient to justify my conclusion that the congestive stage of the physiological experiment is not the homologue of the painful one of the morbid history, mere apposition being sometimes sufficient to decide us on more different homologies, at least in the negative. But I may add that the argument from the *juvantia ac lædentia*, as the older physicians and physiologists phrased it, gives some confirmation to the view which teaches that spasm and starvation go in company with pain; relaxation and congestion only with tenderness. I will put the facts before you as premises, you will piece them together into an argument for yourselves. Chloroform is the greatest of *juvantia* in neuralgia; chloroform, indeed, and ether in equal parts, as recommended by Mr. R. Ellis, may be safely entrusted to a safe person for self-administration; and if taken persistently as well as prudently, may keep the attack in suspense until the enemy from weariness or chronometric obligations, retracts or withdraws. But this great reducer of neuralgia, this great and blessed producer of "indolence" as Locke called it, is also the great reducer of muscular spasm, as we know from its action and our employment of it in cases of hernia, and indeed of tetanus. Now, if it relaxes muscles which we can see in the limbs and trunk without the aid of a microscope, we may think it not improbable that it will do the like by muscles which we cannot see without the aid of that instrument in the arterioles. Chloroform, secondly,* has the reverse action to that of the sympathetic in dilating the bloodvessels of the head, as indeed also has alcohol, itself too a producer, though less directly, of the "indolence" we desire, as well as of much that we deprecate. And chloroform, thirdly, antagonizes the sympathetic in its very obvious act on the pupil.

It may be bold in me to venture further in this direction, yet as a member of the British Medical Association, and as a reader of our admirable journal, I may perhaps be allowed to say, before I return to my own more immediate subjects, that the account given by Dr. George Johnson in March 21, 1868, number of that periodical, seems to me to indicate that epilepsy itself is but a frightful caricature of neuralgia and of the results of vaso-motor irritation and contraction. The presence of dilatation of the pupil in all three sets of cases may be thought perhaps but a slight indication in the direction of identity of cause. High spirits and great vivacity are not rarely in both the two diseases alike precursors of an attack, whilst counter-irritation, which both Schiff and Setschenow† are agreed for once in considering a strong and universal reflex depressant, is not rarely in both diseases alike, both, *ex hypothesi*, dependent on reflex vascular contraction, a preventive.[*]

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† I find that both Mr. Durham, "Guy's Hospital Reports," iii. vi. 1860, p. 153, and Hammond, 'On Wakefulness," p. 25, agreed, that in animals under chloroform, the veins of the brain become distended. I do not, however, lay any great stress on this fact; firstly, because the veins may become distended under the influence, not so much of the chloroform, as of the more or less partial hindrance to respiration which its inhalation implies; and secondly, because we have as yet (Funke, ii. 769, 773) no very distinct evidence for the production of effects on the veins by the sympathetic. But, taking the facts as given, we must allow that venous fulness, though inferior doubtless to arterial replenishment, is still, as the growing prostate of the aged, the rank hairs shooting up round old ulcers, and the cock's spur transplanted to the cock's scomb show, a more or less favorable condition for growth and nutrition. Whereas pain is correlated always with mal-nutrition, and ordinarily with atrophy, and is now always spoken of as a "depression" rather than as an "exaltation of function."

* Setschenow's words are these ("Neue Versuche," p. 23,

I will now proceed to give, in the second place, an account of a physiological experiment worked out for us from time to time in the laboratory of nature, which throws not a little light on a question which I learn from Dr. Wilson Fox's work on "Dyspepsia," p. 141, is still a matter of debate among pathologists; the question, to wit, of the influence of periosteal innervation in causing inflammatory or sometimes even still severer morbid changes.[†]

It is well known that stags after injury to the testes, have corresponding changes wrought out in the corresponding horns. Such a specimen I can show you from the Christ church Museum, founded by Dr. Matthew Lee, in a curious old work dedicated to him, in company with two others of the King's physicians, by Dr. Richard Russell,[‡] and styled "The Economy of Nature in Acute and Chronical Diseases of the Glands," p. 21—24. Five such experiments are recorded.

In such cases as these, after the injury to the testes, the horn may or may not itself be shed annually, but it never thenceforward loses its "velvet," and it never becomes the dry lowly vascular weapon of offence, which in a fortnight or three weeks from the present time we shall see the bucks polishing their hard leather-coated horns into against shrubs and trees. It remains vascular and spongy within, and coated with hairy skin outside, which may be prolonged into pendulous outgrowths. Being sensitive and fragile, and bleeding easily, it acts as a second sexual disqualification; and as I am speaking of this correlation of growth, I may be allowed to add that its reality is further testified to by its absence after similar lesions in reindeer, where both bucks and does are alike horned. Now I submit that a unilateral correspondence of mal-nutrition such as we have here, is as good an instance and exemplification of Flüger's first law of Reflex Action, the law of unilateral (gleichseitig) transmission of stimulus, as any unilateral or *homo* lateral twitching of any muscle can be in response to any one-sided stimulus. Only the reflex action shows itself in the way of nutrition, a sort of reversed hemiplegic nutrition it is true, and not in that of movement nor in that of secretion.[*] Let me, as in the former case, lay alongside of this physiological experiment a parallel to it from pathology. This I will do by the help of Budge, who at pp. 794—795 of his Handbook of Physiology, gives us the two following short histories which have come under his own observation. His words run thus in translation:—"After a long continuing stagnation of blood at the end of the small intestine and the beginning of the large, in consequence of which exudations and adhesions of the peritoneum ensued, the entire right half of the body became weaker than the left, was tired sooner by exertion, the right foot became cold sooner under the same circumstances than the left, the right ear became much more easily the seat of vascular dilatation than the left, and other similar phenomena developed themselves. After a great abscess under the right gluteus maximus and an immense loss of pus, the right hand and the entire right arm became not only evidently thinner to the eye than the left, but also actually smaller." These cases are decisive as to the interference of the nerve system in the process of nutrition, and though organs and structures both physiological and morbid may and do exist and grow in animal bodies being as devoid of bloodvessels and nerves as though they were found in vegetables, still any argument based upon these undoubted facts can be met at once, if so we care to meet them, with the more or less accepted physiological axioms, "the interindependence of parts augments with their development; the solidarity of organs increases and is

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1864): "Es giebt endlich bei meinen Gegnern Versuche, an dessen Richtigkeit ich keinen grund zu zweifien habe, in welchen die einseitige Trigeminus Reizung eine starke allg meine Reflex Depression hervor rief." These words seem to furnish something like a rationale of the picking of the nose in helminthiasis, as also of much of that counter irritation of the fifth nerve at its periphery, which so-called "nervous irritable" persons practise on themselves in the way of "tricks."

[*] These views I came to entertain without any knowledge, or perhaps I should rather say without any conscious recollection of those which Dr. Radcliffe had put before the world in his lectures delivered at the College of Physicians, and published in 1864 in his work on "Epilepsy, Pain, and Paralysis." I have not altered what I had written in consequence of my consultation of this most valuable work, to which I resorted after seeing a reference to it in Dr. Anstie's book. This latter work I have already quoted in the text, and I found it most useful and suggestive to me. I believe, indeed I hope, that what I have written is more or less in accordance with Dr. Radcliffe's views. But it is as much inferior for purposes of consultation, and indeed in other points of view also, to what Dr. Radcliffe has written, and I have read of his, on the same subject, as a skull when just removed, and that in a somewhat fragmentary condition, from a barrow, is to the same skull when pieced together and reconstructed, as you may see many such skulls in the Museum, by Mr. Robertson.

[†] The following references to authorities on this vexed question I herewith append:—Lister, Phil. Trans. 1858, p. 627. Beale, Phil. Trans. 1865, Part I. p. 447. Virchow, Archiv, vol. xvi. 1859, p. 428. Cell. Path., Chirur. Trans. pp. 311, 312. Paget's Surgical Pathology, Ed. Turner, p. 237. British Medical Journal, 1866, p. 402. Anstie, Lancet, 1866. Simon, Holmes' Syst. Surg., 1 p. 62. Bernard, Lecons Phys. Path. Syst. Med. ii. 518. Brown-Séquard, Lect. Phys. Path. Nerv. Syst., p. 143. Budge, Physiologie Handbuch, p. 794. Funke, Physiolog. Handbuch, ii. 776. Donder's Spec. Physiologie, p. 140. Billroth, Die Allgemeine Chirurgische Pathologie end Therapie, 1868, p. 72. Niemeyer, Lehrbuch Path. und Therap. 1868, ii. pp. 320, 340, 428. Handfield Jones, Functional Nervous Disorders, p. 11, and Lectures in Med. Times and Gazette, 1865. Samuel. Moleschott's Untersuchungen, Bd. ix. 18.

[‡] It may be interesting to record here, in passing, that Dr. Richard Russell lived at Reading, that he was a friend of Dr. Chapman and of Dr. Frewin, of this very place, and that the copy of his work which I have referred to, and which exists in the Christchurch Scientific Library, attached to the Christchurch Museum, and deposited with it in the University Museum Building, did in 1760, eleven years before. Dr. Russell's death, belong to Dr. Chapman. Now these facts and dates render it not improbable that this very specimen may have been given by Dr. Russell to Dr. Chapman, possibly together with this copy of his book. It is unfortunate that so much should be left to speculation, but this digression may be justified by the moral which it conveys, to the effect that we are bound when receiving a specimen into a museum, to put on record forthwith, for the benefit of our successors, a note of its history and donor. Dr. Russell was the author of several other works besides the one I have quoted. Their existence has escaped the notice of Dr. Munk in his interesting volumes, "The Roll of Royal College of Physicians," vol. ii. p. 132. Their titles are, 1. "De tabes Glandulari sive de usu aquæ marinæ in Morbis Glandularum Dissertatio." In 1 vol. 8vo. Pret. 5s. 2. "A dissertation concerning the Use of Sea-water in Diseases of the Glands; to which is added an Epistolary Dissertation to Dr. Frewin, M.D." In 1 vol. 8vo. Price 5s.

[*] See Otto "Neue Seltene Beobachtungen Samml," p. 10; Elsaesser, "Ditt. Sex. Manm. præter partes Sexuales," p. 36. Since writing the above, I have seen a note to page 22 of Mr. Paget's "Surgical Pathology," by Professor Turner, in which the fact that no disturbance of nutrition is effected by mere transplantation of the testis *in cocks* is brought forward to show that no mere nervous disturbance can account for these alterations of nutrition. I do not think that these negative results, obtained from experiments on half-a-dozen *birds*, can outweigh the positive facts of unilateral correspondence in malnutrition which have been so frequently observed in mammals. Cf. Hunterian Osteological Catalogue, vol. ii. p. 591.

more intimate with each superaddition of a fresh factor to the entire economy." But these cases do not, of course, touch the question of the way in which this nerve influence comes to act on the tissues, whether mediately through the bloodvessels, or immediately on the tissues with which they are supposed, in the case of the salivary glands by Pflüger, though not, as I apprehend, by Dr. Beale (Phil. Trans. 1865, p. 447), to become continuous. Nor does such an experiment as that of Bidder, in which a salivary gland, under nerve stimulation, picked out two-thirds of the entire quantity of iodide of potassium in the circulation, to one-third picked out and secreted in the saliva of its fellow not so stimulated. For a more innervated gland is also a more vascular gland, and of the two antecedents, greater nerve-current and great blood-current, we have no right from this experiment to say that the one rather than the other is the cause of this particular consequence. And much probability will come to attach itself to Virchow's views, according to which innervation is not proven to increase nutrition directly, but works only mediately by its influence on the bloodvessels, in the minds of persons who may be averse to multiplying laws by cases such as these. We go to a case, as I suppose most of us may, like myself, have gone, and we find one side of the body frequently hot and the other cold; this latter, the friends will tell us, is the paralysed side. We find it is not, and Bernard's experiments enable us to understand why it is so. An excellent case to the same effect, of showing how increase of vital properties may take place in the entire absence of any connexion with the upper part of the cord or brain, may be given from a paper of the late Sir B. C. Brodie's from the twentieth volume, 1837, of the Medico-Chirurgical Transactions:—"A man was admitted into St. George's Hospital, in whom there was a forcible separation of the fifth and sixth cervical vertebræ, attended with an effusion of blood within the *theca vertebralis*, and laceration of the lower part of the cervical portion of the spinal cord. Respiration was performed by the diaphragm only, and of course in a very imperfect manner. The patient died at the end of twenty-two hours, and for some time previously to his death he breathed at very long intervals, the pulse being weak, the countenance livid. At last there were not more than five or six inspirations in a minute; nevertheless, when the ball of a thermometer was placed between the scrotum and the thigh, the quicksilver rose to 111° of Fahrenheit's scale. Immediately after death, the temperature was examined in the same manner, and found to be still the same."

The larger size of a horse's hoof, the nerve of which had been divided, should probably be similarly explained by the greater afflux of blood which would set in thither temporarily until the continuity of the nerve was re-established (Ogle, *Med. Times and Gazette*, Nov. 3, 1866). And, finally such an occurrence as the inflammation of the skin, cartilage or cornea, after its own sweet will, and not in the line of an irritated nerve passing through it (Virchow's Cell. Path.; Chance's Transl. p. 299), seems to speak plainly enough to the self-sufficiency of animal cells to respond to what Neimeyer calls "Insulte," without appealing to any higher powers for assistance; just, in fact, as though they were as little animal, as truly vegetable, and as independent of any cranio-spinal centre as the gall-producing oak or willow.

But in spite of all this I am inclined to think that the direct action of nerves on all is a *vera causa*; and even if our highest microscopic powers do succeed in proving that nerve tissues are never continuous with any other tissues in any part of this distribution, it must be recollected that such intervals as may be demonstrated, will be, if not insensible, at all events infinitesimal, and nerve force may well be sufficient to act across such gaps as these. I can appeal for any justification to Professor Lister's experiment recorded in his paper on the "Cutaneous Pigmentary System in the Frog," p. 636—9; Phil. Tran. 1858; in which certainly the nerve system is shown to have some control over the molecular movements of concentration and diffusion quite independently of the blood vascular system. The cessation of the circulation in a frog's web entails the concentration of the pigment, therefore Professor Lister took a pale frog—*i.e.*, one in which the pigment was already concentrated, and tying a ligature above the ankle so as to eliminate the condition of cessation of the blood's circulation, he then eliminates the condition of nerve influence from the cranio-spinal axis by amputation above the ligature; *cessanta causa cessat et effectus*; the nerve force is removed, and the pigmentary diffusion which it held in check is set up; and continues till superseded by the *post-mortem* concentration which ordinarily takes place, and produces that lightening of the dark hue usually seen in the frog after death. This experiment, which I have not given in full, nor in Professor Lister's own words, is a very striking one, and I hope I may remark, without offence, to any representatives of the German Fatherland to which physiology owes so much, that much that has been recently written and worked at there might have been spared had Mr. Lister's papers been as well known to them as they will be to their successors. They seem to me to make an era in the literature and in our knowledge of the essence of inflammation.

Here, if I may be allowed to digress somewhat, I would remark that Professor Lister's suggestion made in 1858, l. c. pp. 619 and 640, as to the probability of the existence in the limbs of a ganglionic apparatus co-ordinating molecular and other movements at the periphery, sometimes independently, sometimes subordinately to the cranio-spinally-placed nerve centres, may seem to have found a justification in Professor Beale's demonstration in 1865, of the ending of the muscular nerves in nucleate reticular plexuses. Assuredly the discovery of these networks bearing nuclei does away with the necessity for any further carrying on of the apparently interminable discussions as to the existence of an "idio-muscular" as opposed to a "neuro-muscular" contractility. But I will take this opportunity of saying that there are not wanting purely physiological considerations which, though not by any means amounting to demonstration, do nevertheless lend some little probability to the "neuro-muscular" explanation of these movements which take place in muscles separated from all connection with central nerve organs. Firstly, these movements are within my experience more marked and frequent in the muscular tissues of young animals, and the history of the development o nerves would lead us to expect to find a greater degree of independence in the peripheral nerve system than we should look for in the adult organism. For nerves do not grow out from cells in the direction of what we know in the adult state, and under low powers of the microscope as their branches; but, as Von Hensca has shown (cit. Quain and Sharpey, ed. 7. p. clxiv.) two nerve cells are connected by a fibre, and it is by the withdrawal of the one cell from the other, and the elongation, so to say, of the inter-connecting fibre, that the peripheral and central ganglionic systems respectively assume their adult relations. And just so, I may add, in certain annelids and lamelli-branchiata. We have, as we not rarely do have in the lower animals, a stereotyped, though but partial, adumbration of what is but a single scene in the moving diorama of the development of the higher; and we find the peripheral nerve-system bestudded with eyes or other sensory organs, and possessed of a prominence and importance relatively to the central nerve ganglia, which is only temporarily seen in the development of more perfect creatures. Secondly, many of the cases of death in adults in which this irritability is found to exist most commonly and markedly are cases in which, from very various reasons, the functions of the intracranial nerve centres are put into abeyance at a very early stage in the process deathward. Such are (see Nysten, cit. Brown-Séquard, Proc. Royal Soc., 1862, p. 211) cases of decapitation, of asphyxia, of sudden hæmorrhage from a large artery. Now, we know that movements do continue in a portion of intestine which has been deprived of its mesentery, and we ascribe the production of these movements to the presence in the walls of the intestine of the plexuses demonstrated to us by Meissner and Auerbach; and if we may ascribe like effects to like causes, we may ascribe the post-mortem twitchings of muscles to Professor Beale's neuromuscular apparatus. In like manner we should expect from similar reasons, and we do find, as a matter of fact, this same neuro-muscular irritability greatly prominent in the small-brained, cold-blooded vertebrata, and in hibernating mammals. In all of these animals alike the central nerve-system is small relatively to the entire mass of their bodies; whilst in birds, or at least in the more highly organised of the class (for birds, like other bipeds, differ as to the mass and use of the brain—see Parker, Zool. Trans. 1862, 207,) the brain may hold a more favorable relation to the entire mass of their bodies than in any other class of animals; and in birds, as is well known, with some few reptile-like exceptions, such as the peewit, muscular irritability ceases almost with their last act of inspiration.

Whilst speaking of this condition occasionally found in the muscles after death, I am tempted to say a few words of the empty condition of the arteries which is almost constantly found after death. I observe that V. Bezold has explained this well-known phenomenon as being due to a last nervous impulse communicated to the small peripheral vessels *from the brain.*

His words are (Untersuchengen aus dem Physiologischen Laboratorien in Wurzburg, pp. 358, 359, 1867), "Sicher ist aber ein ungemein wichtiges moment hierbei die Innervation der Muskeln in den kleinen Gefässen des Körpers. Man stelle sich vor, dass in der Agonie, in Todes-Kampfe das Vasomotorische Central Organ im Gehirn noch in Krampf-zustande versetzt wird welche mit Pausen der Erschōpfung abwechseln . . . . Ausserdem ist gezegiit worden dass jenes letzte Ueberpumpen des Blutes ans den Arterien in die Venen bei den Sangethieren wenigstens, unter dem Einfluss einer letzter Thātigkeit des Gehirns geschicht." Surely all these "Vorstellungen" would have been spared if Professor V. Bezold had been acquainted with Mr. Lister's papers, or even with those points in them to which I have referred. Indeed that his views is untenable is clear from a consideration of the fact that the circulation can be kept up, and will, like the muscular irritability, persist in a decapitated animal for a long while after death if artificial respiration be put in play. The empty state of the arteries, *post mortem*, is most probably to be explained by the action of the peripheral nerve system on arterioles, though Dr. Alison would have explained it by the attraction *a fronte* force of the tissues around the capillaries; but V. Bezold's view of the source of the nervo-muscular action of the peripheral vessels is, I apprehend, more untenable and less plausible than most theories which have had their day and ceased to be.

The following short history seems to me to be a good instance of the action, or rather of the want of action, of the peripheral nerve system upon the arterioles. A man, who came some years ago under my own care, had had a bullet pass through his arm just above the elbow, so as to sever the musculo-spiral nerve. The scars of exit and entrance were in the lower third of the arm. Under ordinary circumstances the soft parts of the lower arm maintained their normal consistence, but their power of resisting changes of temperature was greatly impaired, as well of course as the sensibility of the parts supplied by the injured nerve. I recollect seeing the swollen state of the inner side of the hand one cold raw morning when the man was on sentry duty and had his hand chilled down by the musket he had to carry. Now I apprehend that this turgescence is to be explained by saying that the local or peripheral nerve system of the affected parts was competent under ordinary circumstances to regulate the calibre of the arteries; but that its activity was liable to be depressed, as under the circumstances related to actual abeyance in the absence of the possibility of any assistance being supplied to it from the cranio-spinal nerve axis. Thus, under the depressing effect of cold, which seems to work here much as it does in the checking the regeneration of artificially amputated parts in snails and in salamanders (Müller, Physiology by Baly, i. p. 404), the peripherally-placed ganglionic system was put into abeyance, and turgescence of the vessels it ordinarily supplied with "tone" ensued. Just similarly in mammals the skin of which has been covered with an impermeable varnish, and in which death is as much due to the chilling down which the destruction of the non-conducting power of their hairy integument entails as to the penning in of its various acrid and volatile and other secretions, œdema and vascular congestion are to be observed in the skin as well as in other organs. (Ranke, Physiologie, p. 456). The flame of mammalian life, like the flame of inorganic combustion of C H, can only be sustained at a high temperature; a certain reduction is as fatal to the one as it is to the other in the Davy lamp, and the vitality of the more exposed peripheral is more easily depressed than that of the more protected central nerve system.

I should be paying but a poor compliment to the judgment which has provided a Microscopic Exhibition for the instruction and entertainment of this evening, if I was to dwell at any length upon the relations borne by histology to medicine and surgery. And, secondly, if I were to dwell in the least adequately upon the importance of a knowledge of microscopic zoology to the diagnosis, and what is better than the diagnosis, and even than the therapeutics, the prophylaxis of diseases of all kinds from those which are considered trifling or contemptible by most men, except those who suffer from them, up to those which excite world-wide anxieties, such as trichiniasis or cholera, I should have to extend my address to a length you would shudder to think of. Upon one single point I will make a few remarks and the purport of these will be to show how the manipulation of such an instrument as a catheter may find, if we are to do justice to our patients, its regulative condition in the manipulation and revelations of the microscope. I had myself recently cause to suspect that the determining condition of the triple phosphatic opalescence of the urine was to be looked for and found in the presence of some of those organisms which Pasteur has proved and hygienists have believed to be the real causative agents of fermentations and putrefactions. Once accepted view of the causation of this most mischievous metamorphosis, is that the coats of the bladder, in consequence of altered innervation, as after spinal injuries, act upon the urine as so much dead matter acts on blood in causing its coagulation, or as the tissues round about the capillaries act when they are in an abnormal condition upon the rows of blood corpuscles within those canals; and by this "catalytic" agency break up the urea and throw down the ammoniaco-magnesia phosphates. Another view ascribes the like effect to the "fermentation" working of the abundant catarrhal mucus, which is in such cases flaked off from the inner walls of the bladder Now, neither of these views suggest a *vera causa* for the effect they profess to account for. Blood coagulates when in contact with non-vitalized matter, and blood corpuscles arrange themselves in *rouleaux* under similar circumstances. But Mr. Lister, who has shown us so much which bears on this matter, has shown us also, and that in the last number but two (July 18, 1868), of our Journal, that urine will remain for an indefinite period undecomposed in a properly-constructed which happens to mean a properly-contorted, receptacle, even though that receptacle be as little vitalised as glass. And Niemeyer has shown, what I daresay many who are now honoring me with their presence have observed, but, I think, not recorded, that urine often retains its acidity through protracted cases of vesical catarrh, and in spite of cumuli of clouds of "fermentative" mucus; which are, therefore, as little of *veræ causæ* as is "catalysis" itself. But the presence of vibrios in the urine, and that before it leaves the bladder, is a *vera causa i.e.*, a present condition, and therefore possibly a cause, or connected with the cause, of the phenomena to be investigated (see Beale "On the Urine," p. 196), and the idea that the alkalescence in question depended upon them, an idea which I had not the time to find an opportunity for verifying for myself, I find has been verified for the benefit of others by Niemeyer, with the assistance of Traube and Teuffel. "In the course of last year," says Niemeyer (l.c. ii. 66, 1868), "I arrived, partly by means of an observation of Traube's, partly by means of experiments and observations of my own which have been published by Teuffel, in the Berlin 'Klinische Wochenschrift,' at the conviction that it was not the vesical mucus, but lower organisms, which probably get into the bladder by means of the introduction of badly-cleaned catheters, and excite there the alkaline fermentation of the urine." Now whether the vibrios find their way into the bladder exclusively on dirty catheters or not, I apprehend that the addition of some carbolic acid to the oil used for lubricating these instruments, whether they be guilty or not of what is here laid to their charge will be a piece of practice calculated to prevent the alkalescence which the vibrios cause by preventing these vibrios themselves from entering on their evil activity. Mr. Lister's paper just alluded to will show that this is an experiment which may very safely be tried; if carbolic acid can be safely introduced into a wounded pleural cavity, assuredly we need not hesitate about passing it into a bladder. Thus many scientific researches, undertaken in the first instance for the elucidation of speculative truth, and for the rectification not of unsound organs and functions but of unsound theories and explanations, and prosecuted throughout by the aid of the most refined methods and instruments, come ultimately to bear upon such matters as catheterization and alkalescent urine. I would not, however, be thought to undervalue the worth of researches carried on at whatever cost with the sole object of procuring those correct notions as to the way in which processes, even wholly beyond our power of modification, have been and are being carried on. It is a great and positive gain when we get rid of one false hypothesis, one single false formula which by frequent repetition has attained to the dignity of a philosophic axiom, and acquired a sort of prescriptive right to "warp us from the living truth." The Chemists, as I am informed, are conspiring to effect what the old Greeks would have called a "Catalysis" of the kingdom of "Catalysis" itself, and its banishment to the Limbo of Vanity, there to herd with Phlogiston and many other and younger as well as older unsubstantial Idola Theatri; and though these alterations of theory may not as yet have affected the oxygen we breathe, nor even have enabled us as yet to regulate with any greater precision the processes of fermentation with which we have for so many ages had an empirical familiarity, they have given us at least a warning as to maintaining always that proper diffidence as to the all-sufficient validity of our theories, by whomsoever promulgated or endorsed, which is so constantly of avail in actual practical work. The phenomena let me add, to account for which the hypothesis of Pangenesis has been recently (Darwin, "Animals and Plants under Domestication"; 1868 ii. p. 493) put forward provisionally are and will we may believe, always remain beyond our control, but there will be no one, I suppose, who will not feel an interest in observing how the revelations into the all but infinite divisibility of "germinal matter," which we owe to Professor Beale, may come to bear upon the explanation of the marvellous phenomena of reproduction and hereditary transmission; nor can I leave this subject without remarking that it is in great probability upon the self-multiplication of such infinitesimal particles as this hypothesis of Pangenesis postulate that processes to the naked eye, the very reverse of Genesis, have been found to depend; and the Blue Book on the Cattle Plague (3rd Report of the Commissioners, &c., p. 151,) will show you that here, too, we are dependent on the employment of the very highest powers of the microscope; and it is scarcely necessary to add that its employer was in this case Professor Beale.

If I have been short in speaking of the advantages which the histology of modern days has conferred upon its therapeutics, I might be shorter still in dealing with my third head—the dependence, namely, of the healing art upon the facts of Anthropotomy—that is to say, upon the naked eye knowledge of the structure with which it has to concern itself. Some little, however, I must say with your permission. Some persons are inclined to think that there is some sort of antagonism between the interests of microscopic and those of naked-eye anatomy; and hints more or less obscurely expressed may be found to this effect here and their in writings even of the present day. It is in much the same spirit that persons are found to say that the sending of missionaries to the heathen abroad entails so much curtailment of similar works at home, and that others will say that the starting of any fresh charitable institution necessitates the subduction of so much from the funds available for those already on foot; and that others again will say that the encouragement of natural science is "inimical"—that is the word they employ—to the progress and cultivation of literary and classical studies. Now, all these views depend upon the radically false assumption that intellectual and moral activities are limitable and measurable by certain quantitative condition, just as a man's expenditure is or ought to be limited and measurable by his balance in the bank. This analogy is a wholly fallacious one, but it has nipped many an excellent project in the bud. A truer analogy is furnished us by the history of those infinitesimal scraps of germinal matter of which I was just now speaking, which are hard to destroy even with floods of carbolic acids and copperas, and which possess a faculty of self-multiplication wholly unparalleled within my experience in the history of the metallic objects of which we were just now speaking. Activity and earnestness, in fact, which are some of the best things, resemble some of the worst in being eminently contagious. The example of a strenuous laborer in one field, spreads in the weedy acres of his slothful brethren on the right and left; and the improvement of the microscope has but been accompanied by a more thorough and accurate working out of human dissection. Let us leave metaphor and general statements, and come to facts. I have in my possession a work written for the use of anatomical students in the University of Edinburgh—a place then as now at least on a level with the most advanced centres of such education elsewhere in Great Britain. Its title is, "The Anatomy of the Human Bones and Nerves, with a Description of the Human Lacteal Sac and Duct, by Alexander Monro, M.D., late Professor of Anatomy in the University of Edinburgh. 1810." The date of its appearance takes precedence, therefore, by some dozen years at least, of the first appearance of an achromatic combination, and if the development of microscopic zeal had really been injurious to the diffusion of thorough anthropotomical knowledge, we should find here in perfection that precision and fulness which *ex hypothesi* are the exclusive fruits of individual attention and undistracted concentration. Now, a few weeks ago I was pursuing some anatomical researches into the homologies of the shoulder-joint muscles, and by the suggestion of one or two of my friends, amongst whom I may mention Dr. Boycott, I took up the line of argument for homological indentity which innovation furnishes. Being deep in the country, I was reduced to consult, in the absence for the moment of other books, the work I have just mentioned, for a small matter in the composition and decomposition of the brachial plexus. This is what I found to satisfy my inquiry in a book expressly treating, you will please to recollect, of the nerves, and written by one of those "famous old anthropotomists" who were not distracted by "microscopische spielereien." P. 291.—"The fourth cervical nerve, after sending off that branch which joins with the third to form the phrenic, and bestowing the twigs on the muscles and glands of the neck, runs to the armpit, where it meets with the fifth, sixth, and seventh cervicals, and first dorsal, that escapes in the interstices of the *musculi scaleni*, to come at the armpit, where they join, separate, and rejoin, in a way scarcely to be rightly expressed in words; and, after giving several considerable nerves to the muscles and teguments which cover the *thorax*, they divide into several branches, to be distributed to all the parts of the superior extremity. Seven of these branches I shall describe under particular names." These seven branches have the particular names of scapularis, articularis, cutaneous, musculo-cutaneous, muscularis, ulnaris, and radialis; of such little trifles as the connexion of the second and third cervical sympathetic ganglia which give off heart nerves, with the arm nerves upon which connexion the pain down the inside of the arm in heart disease. Niemeyer (ii. 338) supposes may, and the older anatomists would have said *must* depend; as the subclavius nerve and its connexion with the phrenic, and so with the shoulder-tip pain in liver disease, we have just as little mention made as we have of the nerves supplying those small muscles, the pectorales. Surely knowledge is not like a volcanic archipelago, where the upheaval of one mass of solid ground entails the submergence of another; rather it resembles some vast tableland which is rising, and now and then at accelerated rates of progress out of the waters, and has, in these days of the subdivision of property and of labor, its broad continuous surface seized upon, partitioned out by enclosures, and put under cultivation by various occupants as soon as ever its outlines are recognisable.

My last topic in this division of my address is the connexion which comparative anatomy has with medicine and surgery, and the bearing which a cultivation of this department of biology has, or is likely to have, upon the interests of the profession. Of the benefits which comparative anatomy receives at the hands of medical practitioners, there is little occasion to speak; or rather Mr. Parker's volume on "The Shoulder Girdle," just published by the Ray Society, may speak for me; it is only less vast than valuable, and will constitute the commencement of a new epoch in the science. But what I have to speak to is not the benefits which comparative anatomy receives, but those which it can confer. And I believe that the educational working of this study is perhaps the particular line along which the best fruits for the profession, and for the public, may reasonably be looked for. Any study which forces its students into that most valuable knowledge—the knowledge of when a thing is proved, and when it is not—is *ipso facto* an ally of real medicine, and a deadly enemy of quackery. A person who has in any way become acquainted with what reasoning and reasons are in one subject, will be apt to look for similar reasons and similar reasoning when he has to deal with another, and especially if that other be a closely allied subject. And when natural knowledge shall have become more widely diffused through the general public, an end which we may hope to help towards accomplishing by means of our School of Physical Science, quackery, with its painful spectacles of reputation and confidence unfairly witheld and more unfairly bestowed, will cease to flourish in all present exuberance. A worker in Biology gains a reputation accordingly as he is acute enough to observe and generalize for himself, and accordingly as he is conscientious enough to make himself master of and duly acknowledge the labors of others. It cannot be said that learning, talent, and labor are equally certain to secure prominence either for a medical doctrine or a medical practitioner. The medical doctrine obtains currency, acceptance, and popularity and the confidence of an ill-educated public by virtue ordinarily either of the effect on the imagination, which its parodoxical character secure for it, or of the effect on the ear of the alliterative ring of the phraseology in which it is embodied. The success of persons, again, in the medical profession and in some other walks of life too, may depend upon personal qualities quite other than any connected with diligence, attainment, or ability—upon, say, certain peculiarities of manner, either in the way of polish or that of roughness. The greatness of the stake, his own health, for which a man is playing when he adopts a particular doctrine or doctor of medicine, no doubt disturbs the balance of such powers of judgment as he may have, much as in Gessler's hopes the placing of an apple on the head of Tell's son distributed the steadiness of the father's hand and eye. But habits of thought as of other things may be acquired by a proper course of education, and habits, like drill, steady a man under emergencies; and a scientific training enables a man to set about forming a right judgment in a right way and upon proper and legitimate grounds, even when nothing less than life itself is at stake. If a knowledge of such a subject as comparative anatomy, and of its external aspect, scientific zoology, is a knowledge which will give the layman more power of forming right decisions, it is perhaps needless to labor long at showing that this self-same knowledge may be of the like service to the professional man. A sort of practical proof of its value is furnished us by the fact, that in Germany a dissertation on some subject of comparative anatomy is often accepted as the thesis of a candidate for the degree of doctor in medicine. By such a regulation we have the obvious fact recognised, that the same sort of skill in the employment of methods, the same familiarity with organs, tissues, and functions, the same reasoning powers, are employed in investigating the problems of life wheresoever existing. The second aphorism of the "Novum Organon" applies to the one as to the other line of investigation, that of Human, and that of Brute Biology—*instrumentis et auxiliis res perficitur*; and alike in both, *nec manus nuda nec intellectus sibi permissus multum valet*. Comparative anatomy finally, besides thus benefiting the public firstly, and the profession secondly, is of use to human biology and medicine, as such, inasmuch as it casts so much light upon the problems which the more highly evolved organs, functions, and other relations of our own species, render in a much higher, and, indeed, sometimes in the highest degree difficult or impossible to investigate. Answers to what are riddles in human anatomy and physiology are often to be found given in very simple language in the structure, and functions of the lower and lowest animals. Of such hints furnished by the brute creation towards the proper solution of certain problems which concern each and all of us in dealing with our own species, I will herewith, by your permission, give a few. Of the use of rest towards the repair of injuries I presume there is little doubt, but the best established teaching is all the better for the support of a few concrete examples. Now, in what animals do we find the greatest capacity for repair of injuries, and for the reproduction of lost parts and limbs? Precisely in those in which the whole of life is carried on at the slowest rate, and in the nearest approximation to rest which is compatible with animality—in those animals, to wit, which breathe water, and have but its scanty percentage of dissolved oxygen to sustain their animal functions. The metamorphoses which an animal may have undergone, or may have to undergo, have very little directly to do with its power of recovery from injury, or of regenerating a lost limb. No animals go through more complex metamorphoses than do many of the crustacea, and nearly all the echinodermata, yet assuredly no other class has a larger capacity for the reproduction of lost fragments of their bodies. Now the latter of these classes is exclusively, and the former all but exclusively, aquatic. The more perfect, again, an insects's metamorphosis, *i.e.*, its power of building up tissues and organs, the more perfect ordinarily, or rather the more profound, has been its quiescence as a pupa. Indeed, the very exception here proves the rule, and proves it to be a good one, for such hemimetabolous insects as, like May and dragoon flies, come, in their imago state, to differ almost as much from their larval forms, as the imagos of many holometabolous insects do from their larvæ, are during those preparatory stages as completely aquatic as any crustacean (Westwood, "Introduction to Entomology," ii. 29, 38; Carus and Gerstaecker, "Handbuch der Zoologie," p. 29) I am aware that there is such authority as Mr. Paget's ("Surgical Pathology," p. 123, ed. Turner), and Mr. Darwin's ("Animals and Plants under Domestication," vol. ii. p. 15), in favor of regarding the power of repairing injuries as standing in an inverse ratio to the amount of metamorphotic change an animal has gone through; and I must therefore take the more pains to show that my explanation, to the effect that this happy power depends mainly upon the peacefulness and quiet with which the various processes of life are carried on ordinarily, and after the mutilation, is the truer one. My opponents case would rest on such facts as these which follow. I will give them first, and then show how they really support my views. The larvæ or tadpoles of the tailless batrachia, but not the adults, says Dr. Gunther (Darwin, l, c., and Owen, Comp., Anat., Vertbr. i. p. 567), are capable of reproducing lost limbs. So with insects, says Mr. Darwin, *in loco*, "the larvæ reproduce lost limbs, but except in one order" (the Oethoptera and amongst them the Phasmidæ bat ?*) "the mature insect has no such power." There is, however, one common property which lies at the bottom of the power of repair both in the larval forms and in the perfect adult animal, both in the invertebrata and in the vertebrata specified. This common property is the comparative insignificance of the apparatus for aërial respiration in all alike, in the larva of the anurous amphibia, in the larva of the butterfly, and in the orthopterous insect, the lungs or the tracheæ, as the case may be, contrast to disadvantage with those of their congeners, or adult representatives, which have come to differ from them in having lost the power of reproducing lost parts. But active respiration is a pre-requisite for activity of function and rapidity of rate of vital processes; and the absence of this is, according to my argument, the cause of the presence of the reparative power. The lungs are of course all but wholly in abeyance in the tadpole, and the tracheæ have no vesicular dilatations developed upon them in the caterpillar forms of any insect, nor in the adults of the non-volant Orthoptera. In the Phasmidæ, the curious "walking stick" insects, we observe just the same sluggishness, combined with great tenacity of life, which we observe among mammals in the Bruta. Let me add some more facts in further illustration of my position. The Myriopoda, which Mr. Newport has shown to possess this power of repair up to the time of their final moult, are so little like the more typical insects, as to have been classed with the Crustacea, by no less an authority than Von Siebold. Any one, again, who will compare the simple non-cellular lung of the adult batrachian newt *salamandra aquatica*, which possesses an unlimited power of repair *as an adult*, but *not in its young stages* (Bonnet, Œuvres, Hist. Nat. v. Pt. i. p. 294,) with the lung of the adult frog, will have little difficulty in understanding how their power of repair differs out of all proportion more than the amount of the metamorphotic changes they severally go through. The land salamander, *salamandra terristres*, has so far as I know escaped the hands of Spallanzani and Bonnet: its adult lung being little inferior in extent and development of spongy matter to that of the ádult anura. I should expect the power of regeneration to be reduced to zero as in them. If the teaching of Comparative Anatomy has forced me to differ from the teaching of Mr. Paget, there are other facts in the same region of research which, as it seems to me, put one of his other many valuable doctrines in a clearer light than even his own clear enunciation of it. "Each man's capacity," says Mr. Paget, "for bearing a surgical operation may be best measured by the power of his excretory organs in the circumstances in which the operation will place him. Now, I am inclined to ascribe the very considerable, and, indeed, on my views, somewhat exceptional powers of reproduction which two sets of air-breathing terrestrial animals, the pulmonate snails and the earth-worms, possess, to the great development of their excretory apparatus. Living as they do very ordinarily in atmospheres laden with carbonic acid from decaying vegetable matters, they must get rid of the products of their waste and wear in the shape of solution in fluid; and the alkaline secretion with which the bodies of both are so abundantly slimy, furnishes just the required medium. When injured or mutilated, these animals can withdraw themselves pretty completely from the atmospheric oxygen by shedding out this secretion, and it at the same time dissembarrasses their system from any excess of carbonic acid which may be generated within it. Thus they can attain the most perfect possible condition for repair and regeneration, the minimum of activity of all save the excretory organs; and I submit that it is possible that these two conditions may be connected as cause and effect, just as in the reverse direction a defeat of surgical skill may be connected with the presence of a fatty kidney or liver, or the excitability of a nervous system. It is going perhaps too far to attempt to explain the much greater power of repair which Amphibia possess as compared with either Pisces below or Reptilia above them to the larger size, and consequent smaller aggregate surface and less perfect aërating power of their blood-cells, and to the transpirability of their naked skins, which execute such important depuratory work for them, and are so closely connected and correlated with their lungs, livers, and kidneys. It is curious, however and interesting to remark that the older anatomists in commenting on the very obvious solidarity of these latter organs, went on, in their ignorance, I imagine, to a great extent, of the nature of amyloid and other degenerative changes in such cases, to observe that it was illustrated by the "fact" that, as the lungs grew smaller so the kidneys grew larger in phthisis.* (See Funke, "De Salamandre Terrestris vitæ," 1827, and Michel, "Path. Anat.," i. 613, 646.)

Verloren, as quoted by Donders ("On the Constituents of Food," translated by Daniel Moore, M.D., p. 24), has shown how the history of insects bears on the question which we are this afternoon to have expounded to us of the "Relation of Food to Force," and the very title of Bischoff's and Voit's work, "The Laws of the Nutrition of the Carnivora," show how this subject, to which I shall no further allude, but leave it to the able handling to which it has been entrusted, is dependent on the life, and the modes of life of the lower creation. But I would say that it was from a study of the structures of the class of animals last mentioned —viz., the carnivora—that I first came myself to be convinced that the uterine mucous membrane would, if properly looked for, be found in all animals alike to stretch after delivery over the area previously occupied by the placenta; and assuredly there is no one of the many complex and hard to be investigated problems of human physiology to which we are more bound to be thankful for light whencesoever obtained; and this, though the light come, as in justice to Dr Matthews Duncan and Dr Priestly, I must say it did, in the way of illustration and confirmation rather than in that of discovery. (See Zoological Society's Transactions, 1863, p. 289. Dr. Duncan's "Researches in Obstetrics," p. 206,)

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* There seems to be some little doubt whether even a Phasma can regenerate lost parts after its last moult, and some authorities would not consider it adult till after such ecdysis. The crustacea, however, moult many times after attaining the adult state, *i.e.*, a state in which they can reproduce *the species*.

* For accounts of experiments as to regeneration of lost or destroyed parts, see Darwin, "Animals and Plants under Domestication," ii. 15, *ubique citata*. Owen, "Comp. Anat. Vertebr.," i. p. 567. Newport, "Phil. Trans.," vol. 134, 1844, *ubique citata*. Paget, "Surg. Path." ed. Turner, p. 123. Spence, "Batr. Ana. and Mag. Nat. Hist." for the current month, August, 1868, citing the "Loyd" of Hamburg, p. 118, McIntosh, "Experiments on Carcinus. Mœnas," p. 28.

These facts of the structural and functional arrangements of the lower animals have been used recently to illustrate some other points of uterine pathology and therapeutics in our own species. In a work by Dr F. A. Kehrer, of Giessen, in two parts, the former of which was published in 1864, and treats of "Die Zusammenzieh ungen des Weiblichen Genital canals," and the second of which was published in the present year, 1868, and treats of "Die Vergleechende Physiologie der Geburt des Menschen und der Saugethiere;" I find no little light thrown upon the question of relative position, whether as cause or effect, in which early and late abortions respectively stand to imperfect involution of the uterus. And I find also *in loco* a very distinct admonition as to the inexpediency of allowing fear of decomposition to terrify us into what is called, "meddlesome midwifery." These extracts I think you may be interested to hear; I will simply quote them, and leave you, who are so well able to do it, to make the application of them for yourselves. Heft i. p. 52. "Finally let it be remarked that in rabbits in the earlier stages of gestation I saw the fœtus with its fœtal envelopes protrude entirely out of the os uteri, whilst the placenta still remained firmly attached in the uterus; a phenomenon which indicates either that in the earlier stages of pregnancy the placenta materna is less lacerable, or that the motor power of the uterus is a relatively smaller one, and one which finds its analogy in the occurrences which take place in abortions and premature deliveries in the human subject." In his second Heft., p. 166, Dr Kehrer, in speaking of the retention of the placenta being sometimes followed by symptoms like septic poisoning and sometimes not, has words to the following wise effect:—"What chemical changes may be set up in the retained placenta is clearly dependent hereon, whether the after-birth is shut off from contact with the air by the genitalia or not; for if air finds access to it the membranes of the ova putrefy; if air is excluded, a process of decomposition, probably identical with one of maceration of the fœtus but wanting further chemical investigation, is set up. The occurrence of the one or the other eventually is so far of importance, as thereupon hangs the after-effect of a retention of the placenta upon the general health. In fact, one observes in women, just as in the animals mentioned, sometimes only insignificant symptoms sometimes emaciation and withering up; sometimes, as after the absorption of putrilage from the decomposing membranes, a violent, even a fatal pyæmic fever. In the face of these facts, it seems to me to be rational in ruminants, in which the cotyledon can only be detached from the uterus by considerable violence, and scarcely even then, completely *to avoid all introduction of the hand into the cavity of the uterus after delivery,* just with the object of keeping it free from the ingress of air, and to leave the separation of the placenta rather to the natural forces. One will thus best avoid putrefaction being set up in the cavity of the uterus, and so expose the animal the less to the risk of a pyæmia. I have not quoted from the recently published works of Matthews Duncan and of Dr. Graily Hewitt, though I have specified in my notes the pages of those works which bear upon what I have just quoted from a foreign source. I have forborne to do this, not because I think those works less, but because I think them more valuable, and I presume they will be in your hands as they have passed through mine.[*]

The human anatomist who has once seen in the lower animals the structures which represent, as it were, in exaggeration or caricature, the human costo-coracoid membrane; the tuberculum pubis with the homologue of the clavicle which is attached to it as Poupart's ligaments, or the supracondyloid process of the humerus, is not likely to forget their existence when, with either scalpel or bistoury in hand, either for the ligature of artery or the setting free of a hernia, he has to deal with their representatives in the human frame. But if I am right in thinking that the ciliary muscle in the eye would not have secured for itself the notice which it has done of late years, had it not been for the much more obvious manifestations of a similar if not homologous, muscular apparatus in the eye of the bird, I apprehend that I am justified in saying that every surgeon who performs Mr. Hancock's operation of cylicotomy for glaucoma, is under obligations whilst so doing to comparative anatomy and Sir Philip Crampton. I need not speak of the bearing of the discovery of this muscle in the human eye by Mr Bowman upon the physiology of its adjustment to clear vision at varying distances. Pure physiology, again unassisted by comparative anatomy, has made much of pure function; but much as has been attempted in the way of experiment with infusions of pancreatic substance, and with the introduction of canulæ into the duct of the gland, I am inclined to think that a comparison of the relative size of the gland in the carnivora and the herbivora respectively, in a dog say, and in a rabbit, points as unmistakably as any of the lines of experiment just referred to—which, by the very nature of the case, are greatly beset with several sources of fallacy—to the fact that this salivary gland is concerned as much with the digestion of albumen and fat, as with that of starchy substances. With the remark that Hyrtl's discovery (Wien. Zool-Bot. Ges., 1861, cit. Henle) of the diverticular character of the glomeruli in the kidney of the cetaceans and amphibia, bears not a little upon the existence of a similar arrangement between the vasa recta and the renal arterioles in the human kidney, whereby, as by the direct communication shown by Van der Kolk to exist between the arteries and veins of the *pia*

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[*] Dr Grailly Hewitt, pp. 39, 342, 343. Dr. Matthews Duncan, "Researches in Obstetrics," pp. 276, 284, 285. Cazeau, "Traité des Accouchemens," 334, 349.

*mater*, the capillary circulation may be skipped and the tissues in relation with it left at rest, I leave this part of my subject and begin the concluding portion of my address.

In this part of my address I propose to consider, and that mainly by the light of recently-attained biological results, the value of two great rules for the conduct of the understanding, each of which has a legitimate sphere of application, but the former of which enjoys more and the latter less than its deserved prominence. The first of these two regulative principles has received the endorsement of Newton, and it stands as his first "Regula Philosophandi," at the commencement of the Third Book of the *Principia*. It was known in the days of the schoolmen as the "Razor of Occam," and in later days it has been styled the "Law of Parsimony" or "Economy." Newton enunciates it as follows,—"Causas rerum naturalium nonplures admitti debere quam quæ et veræ sint et earum phænomenis explicandis sufficiunt. Dicunt utique philosophi. 'Natura nihil agit frustra;' et 'Frustra fit per plura quod fieri potest per pauciora.' Natura enim simplex est et rerum causas superfluis non luxuriat." I know that this Regula has great influence on the minds of many biologists, and I believe that this its influence is by no means always for good. This is not a subject in which authorities ought to count for much; but I may say that while the names of Aristotle, Malebranche, Maupertius, St Hilaire, Goethe, Bichat, and Dugald Stewart may be quoted in approval of this rule; the names of Bacon, Mill and De Candolle may be brought forward by those who repudiate it or curtail its application. Our motto, however, is "Nullius addictum jurare in verba magistri;" and our business is to ask, not what men have laid down, but how nature operates. Can a phenomenon have more than one cause, or can it not? Is it possible, for example, and to put the question in a concrete and most practically interesting point of view at once, that a fever which we know can spread by infection or contagion, can also originate spontaneously? I rather incline, though but doubtfully, and after an imperfect examination of imperfect data, to anticipate that a negative answer to this latter question will turn out some day to be the true one; but I do not know that there is anything in the analogy of nature to compel us to incline towards this negative conclusion *a priori*. Such a phenomenon, at all events, as a living animal is often enough produced by two or more distinct processes, within the limits of the same species; as, for example, from ova of different character, summer ova or winter ova, impregnated or unimpregnated ova; by fission or gemnation; through two different series of metamorphotic changes. And such a phenomenon as the production of a particular tissue may depend—in the case of adipose tissue, for example—upon the employment in Nature's laboratory of one or the other if two different chemical compounds. In each and all of these cases, the maxim which has many a time been sonorously enunciated in these Schools, "Entia non sunt multiplicanda præter necessitatem," would, if listened to, have closed our ears and eyes to at least one-half of the truth. That Bacon would have classed this maxim with his Idola Theatri, I think I am justified in saying, for that in the very next section (Section xlv.) of the "Novum Organon" to that in which he treats of these delusive notions, I find these words: "Intellectus humanus ex proprietate sua facile supponit majorem ordinem et equalitatem in rebus quam incurrit;" and if I am told, as by Mr. Mill (*see* "Logic," vol. ii., p. 379, ed. 1846), that Bacon, in the actual practice of investigation, acted as though there were no such thing as plurality of Causes, I need only answer that herein his practice did not differ from his precepts at all more widely than does the practice of many other writers, of many practising, of many teaching doctors, differ from theirs. I have a satisfaction in quoting the living De Candolle, who enjoys one of the first and best deserved scientific reputations of the day, in repudiation, of Maupertius' famous principle of "least action" De Candolle writes thus in his "Geographie Botanique," vol. ii. p. 1105—"Nous aimons à croire aux moyens simples peut-être uniquement à cause du peu de portée de notre esprit."

What, then, is the legitimate application, where does Nature really bind herself to the observance of a "Law of Parsimony!" In, as I think, three distinct lines of her operations. Where an organ can be divested from one and set to discharge another function, there Nature will spare herself the expense of forming a new organ, and will adopt the old one to a new use. She is prodigal in the variety of her adaptations, she is niggard in the invention of new structures (Milne-Edwards, cit. Darwin's "Origin of Species," p. 232). The complicated arrangement of co-operating muscles whereby the bird's third eyelid is drawn across to moisten and wipe its eyeball without undue pressure on the optic nerve, is manufactured, if so we may express ourselves, out of the *suspensorius* muscle, which in other animals has but the simple function of slinging up the eye. The scarcely less complex and beautiful arrangement of the bird's *levator humeri* is the result of a modification of a subclavius muscle.

Secondly, where, by availing herself of the inorganic forces always at work and available in the circumambient medium, whatever that medium may be, or where, by the employment as in what is called "Histological Substitution," a lowly organized or vitalized tissue, such as elastic tissue, she can spare herself the manufacture of such expensive structures as muscle, there Nature adopts a line of practice which we call a Law of Parsimony. Where a suspensory muscle for the eye can be dispensed with altogether, as where there is a more or less closed bony orbit, as in ourselves, and an airtight cavity formed by it, together with the soft tissues lining it, there atmospheric pressure is trusted to to steady the eye in its socket, as it refixes the tooth loosened by inflammation, and holds the head of the femur in theirs. The eye of the burrowing mole, on the other hand, loses its *recti* and *oblique* before it verges itself into total extinction; but this very *suspensorius* it retains after the wreck of its other property as its guardian in the undivided undifferentiated temporo-orbital fossa.

Thirdly, where matter that would otherwise be wholly refuse, and to be rejected, can be utilized, there Nature exemplifies this law by her "utilization of waste substances." The transverse colon, with its various contents, aids and ekes out the elastic recoil of the lungs in expiration; and by its near approximation to the stomach, has, as Duverney long ago pointed out, the shock of the ingestion of fresh food, propagated directly to it as a warning against sluggishness in the discharge of its own function. The air we use in speech, as Mr. Paget used to point out, we could not use for breathing.

Many other instances of the "Law of Parsimony" might be given; but I know not of any which cannot be reduced under one or other of these three heads; I know of none, that is, which can be in any way held to negative the tenability of a law of "Plurality of Causes." The second great principle for the regulation of the understanding of which I wish to speak, is one which I believe possesses less currency and notoriety, and is less observed than it deserves. This canon bids us, in considering a complex phenomenon, to be most careful that we omit none of the circumstances which can by any possibility be of the essence of the case. And as the possibilities of nature are all but infinite—as, for example, the investigator of problems of geographical distribution knows well that a "secret bond" may bind up together, and that inextricably, the interests of organisms removed as far as possible to all appearance from each other in the scale of life, as a fly or a plant may, by its increasing and multiplying, make half a continent uninhabitable or inhabitable by the highest mammals; I apprehend that in biological and medical problems, by the phrase "all the circumstances which can by any possibility be of the essence of the case," we mean practically, "*all* the circumstances of the case," without any qualifying limitation. But we will let Descartes, to whom the enunciation of this rule is usually and, so far as I know, rightly assigned, enunciate it for us in his own words. These run thus ("Œuvres," tom. xi. 1826 ed. V. Cousin, p. 23):—"Règle Septième pour la Direction de l'Esprit. Pour compléter la science il faut que la pensée parcoure d'un mouvement non interrompue et suivre tous les objects qui appartiennent au but qu'elle veut atteindre et qu' ensuite elle les resume dans une énumération methodique et suffisante." Some of the very greatest advances which have been made of late in practical diagnosis have been made in the spirit of this recommendation. The application of a chemical test to the urine for information as to the expediency of giving or withholding wine in the case of a sinking life, would have seemed to Swift, could he have had any idea either of such a procedure or of the employment of a sphygmograph for the same object, more absurd than any of the follies he ascribed to the philosophers of Laputa. But as Archbishop Whately, a name to be greatly honored here, and, indeed, wherever else liberality, and fearlessness, and ability are held in respect, has well pointed out, the absurdities of Laputan aspirations are less wonderful than the actual attainments of modern science. And to these results science has attained, for that her votaries have known that what may seem to Swift, and such as Swift, to be but curious and dilettante, otiose, or even disgusting, may turn out ultimately to be essential elements in problems the solution of which promote directly and greatly the interests of man, and the glory of Him to whom nothing is common nor unclean. Could anything have seemed at first sight to be more impertinent, more strongly curious and trifling, than to inquire during an epidemic of cholera what was the nature of the subsoil in the area it was ravaging, to what depth it was porous, and at what level the water was, and had been previously standing in it? Yet, as I think, V. Pettenkofer has at last fought out and won his battle on these points (see "Zeitschrift fur Biologie, Bd. I Heft iii. und iv., 1865; Bd. II. Heft i., 1866; Supplemental Heft, 1868, p. 54); and the distinguished President of our "Public Medicine" section, Mr. Simon, who is as little prone as most men of science to take up over readily with any new wind of doctrine, has told us (Report Privy Council for 1866, p. 366 and 457) that certain of his carefully observed cases of the distribution of this disease seem to illustrate and find their explanation in V. Pettenkofer's theory. I have pleasure in adding that I see by papers published by the illustrious Professor of Munich in the "Allgemeine Zeitung" for June last, that he has been able to show that amongst all the other circumstances of the case at Gibraltar and at Malta, there were still to be found, all guessing and objections notwithstanding, the porous subsoil and the retreating ground water, as factors in the complex constituting an area or arena for cholera. Let us attend to and note always all the circumstances in every complex phenomenon which we have to investigate, but let us not betake ourselves over-hastily to the process of eliminating antecedents, until we be quite sure that they do not enter as factors into its causation.

I may say, in conclusion, that attention to this seventh rule of Descartes might have saved such students of natural science as have fallen into materialism from falling into it. The physiologist, as such, has nothing to do with the data of psychology which do not admit of being weighed or measured, nor of having their force expressed in inches or ounces. This language, which I long ago employed myself (*Nat. Hist. Rev.*, April, 1861; *Med. Times and Gazette*, March 15, 1862), coincides with an utterance which I am glad to see in Mr. Herbert Spenser's recently issued first number of his new edition of "Principles of Psychology." There (part i. chap. i. p. 48), Mr. Spencer says, "It may safely be affirmed that physiology, which is an interpretation of the physical processes which go on in organisms in terms known to natural science, ceases to be physiology when it imports into its interpretations any psychical factor, a factor which no physical research whatever can disclose or identify, or get the remotest glimpse of." But, I apprehend, if the physiologist wishes to become an anthropologist, he must qualify himself to judge of both sets of factors. There is other science besides Physical Science, there are other data besides quantifiable data. Schleiden, a naturalist of the very first order, compares the Physical Philosopher (Materialismus der neueren deutschen Natur Wissenschaft, p. 48), who is not content with ignoring, without also denying the existence of a science based on the consciousness, to a man who on looking into his purse and finding no gold there, should not be content with saying, "I find no gold here," but should go further and say "there is no such thing as gold either here or anywhere else." It is interesting to note that here in Oxford till within a few years of the present we narrowed the application of the word "Science" in what seems now to be a curiously perverted fashion. For, ignoring all the physical world as entirely as though we had been already disembodied, we used the word to denote and connote only logic, metaphysics, and ethics. By a "student of science" in my undergraduate days was meant a student of the works of Aristotle, Kant, and Sir William Hamilton. The wheel has since made somewhat of a circle; our nomenclature, like much else belonging to us, is altering itself into a closer correspondence with the usages and minds of the larger world outside; the so-called "student of science" of the year 1850 is now said to go into the "School of Philosophy;" and "the student of science," as our terminology runs in the year 1868, will be found at the Museum studying the works of Helmholtz, Miller, and Huxley. I do not say this by way of triumph, but rather in that of regret, little disposed or used though I am, and hope always to remain, to regret or deprecate change as such. For there is a philosophy of both subjects, and a science also in both; and I would hope that both the one and the other might still retain a lien on the two words and the two things, nor suffer its rival to establish a claim for sole possession by its own default in exercising a right of usage.

Advocates of the dignity of man are wont to regard, or to profess to regard, with something like horror doctrines which would hint that either his bodily structures or his mental faculties, his "more pure and nobler part," may have attained their perfection in the way of gradational evolution. But it is not clear to me that the horror expressed for these conclusions is much more legitimate than the arguments with which they have been assailed by Prime Ministers and others in the Sheldonian Theatre close by and elsewhere within our precincts. For dignity rests upon responsibility—a man is worthy or unworthy, accordingly as he can or cannot make a good answer when called upon by a voice, either from within or without, to account for his conduct or for his character. And just as a man is responsible for the employment of the wealth he possesses to the Government under which he is suffered to enjoy that wealth, no matter in what way he may have become possessed of it, whether by the hereditary transmission of a family estate, or in any other of several feasible and conceivable ways, so is a man responsible for the employment of his corporeal and mental faculties, howsoever he may have been allowed to become seized of them, to that larger and largest Government under which he has his being. I believe, however, that if men would take as much and the same care in these psychological questions as the physiologist does in his experiments and observations, to overlook none of the conditions and circumstances of the entire complex of phenomena they undertake to decide upon, they would come to see that above, and often behind, but always beside and beyond the whirl of his emotions and the smoothly-fitting and rapidly-playing machinery of his ratiotinative and other mental faculties, there stands for each man a single undecomposable something—to wit himself. This something lives in his consciousness, moves in his will, and knows that for the employment and working of the entire apparatus of feelings and reasonings it is individually responsible. Its utterances have but a still small voice, and the turmoil and noise of its own machinery may, even while working healthily, entirely mask and overwhelm them. But if we withdraw ourselves from time to time out of the smoke and tarnish of the furnace, we can hear plainly enough that, howsoever the engine may have come together, and into its present being, the engineer, at all events, is no result of any processes of accretion and agglomeration. Science, business, and pleasure are but correlations of the machinery in its different applications and activities; *we* are something besides all this, manifesting ourselves to others in the decisions of our will, and manifesting ourselves to ourselves in our aspirations and consciousness of responsibility.

"And e'en as these are well and firmly fixed,
In dignity of being we ascend."

I have heard this line of argumentation likened to an attempt to defend Sebastopol by balloons. "Whilst you are in the clouds, your city will be taken beneath your feet." But a position, though airy, may yet be unimpregnable. There are those present who will recollect how the highest placed forts of that famous town were never taken, but continued to the last to answer shot for shot, and shell for shell, to the Allies. The attacking forces knew not the strength of those north forts till they entered them, but when they entered them they entered them as friends.

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# Clinical Lecture

ON

# PARALYSIS WITH WASTING OF MUSCLES ESPECIALLY IN CHILDREN.

By J. Russell Reynolds, M.D., F.R.C.P.,

Professor of the Principles and Practice of Medicine in University College; Physician to the Hospital, and to the National Hospital for the Paralysed and Epileptic.

Gentlemen,—There are many cases of paralysis met with in the adult, with regard to the commencement and past history of which the only ascertained fact is that the symptoms had their origin in infancy. Such cases commonly present wasting and shortness of the affected limbs, and not unfrequently deformity, The causes of infantile paralysis are numerous, and some of them are well understood, inasmuch as they differ in no special manner from those which are encountered in after-life; but there are some forms of paralysis, of which young children furnish the examples, that we cannot refer to the commonly recognised conditions of hæmorrhage, softening, tubercle, syphilis, and the like. So peculiar have these cases appeared that they have sometimes been called "essential paralysis," and this, it would seem, from the fact that nothing beyond or besides the paralysis has been observed. When such cases fall under observation it often happens that the physician sees before him an apparently healthy child, in whom the only morbid condition that can be recognised is a weak and ill-nourished or a paralysed and withered limb.

It is to the clinical history, pathology, and treatment of such cases that I wish to direct your attention. You have lately seen two such cases in Wards 3 and 4, and you have witnessed the marked improvement—I may say almost complete restoration—which followed treatment; but you had no opportunity of observing the earlier history of these cases, and I will therefore supplement the account of their symptoms by giving you the result of my experience of some other examples, the minute history of which at their onset I have been able to observe or learn.

1. *Commencement of symptoms.*—A. B——, a healthy girl, the youngest of three, born of healthy parents, without any premonition of disease of any kind, at the age of nine months "took cold in the head," was feverish, and heavy in manner, for nearly a week, but improved towards the end of that time, and tried to get up. It was seen, however, that she "could not put either foot to the ground," although both of the hands were moved quite freely, and there was no pain nor spasm in the lower extremities. In a very short time she moved and used the left leg as freely and firmly as before the attack of "cold," but the right leg was paralysed, and in the course of a few weeks was observed to be cooler, softer, and smaller than the other.

C. D——, a fine boy, the fifth of six healthy children, at the age of four years suffered from some "stomach complaint," was "poorly" for about a week, complained of his legs being "sore," and was found, after keeping his bed for five or six days unable to stand. At the end of a month he could walk, but, in doing so, dragged his left leg, which was then thinner, softer, and cooler than the right.

E. F——, a boy who had "never had a day's illness," the youngest of eleven healthy children, when two years old became fretful, restless, sore all over, and lay on his back; "seemed to lose the use of all his limbs," and could not sit up; was distinctly feverish for a day, but for one day only; he moaned at night; but after a few days he seemed well. At the end of a fortnight he walked but did so like a much younger child, and it was noticed that he made no use of his right arm—that the arm was thin, and especially so about the shoulder.

These three cases are sufficient to illustrate the ordinary manner in which the paralysis I am describing makes its appearance. The *febrile* symptoms were slight, and of only short duration; the constitution was good; there was no recognised cause of disturbance—no fall, no blow, no exposure to cold, no obvious external influence nor internal derangement which could account for the phenomena. The age at the onset of symptoms ranged from nine months to four years, and dentition did not appear to have exercised any influence in the production of the malady. In some cases, that have come under my notice after several years' duration, it has been affirmed that there were no febrile symptoms at the commencement, but that the child was suddenly, or accidentally, found to be unable to move any of its limbs, or even to sit up; but it must be remembered that slight accessions of fever are sometimes disregarded at the time, and are wholly forgotten afterwards. The child is put to bed because it is not well, and when it is "better" the paralysis is recognised. Laborde (in an excellent treatise entitled "De la Paralysie dite essentielle de l'Enfance") states that fever was present in four out of five case that came under his observation; and where I have been able to learn accurately the previous history there has invariably been some period of distinct but slight and transient illness. I therefore beg you to remember this febrile mode of onset; the fever being of only one or two days' duration, being feebly marked, but continuous in type so long as it lasts, and unaccompanied by the vomiting and marked nervous disturbances which, under other circumstances, so frequently characterise its presence in early life.

Sometimes, but not more frequently than once in five cases (Laborde), *convulsions* mark the onset of infantile paralysis; and there is occasionally nothing in their actual phenomena which will enable you to distinguish between them and the fits which may arise from dentition, worms, and from organic disease of the brain. But usually there is an absence of those symptoms which pertain to organic diseases of the brain: there is no vomiting, no headache, no strabismus, and no spasm of the face. Commonly, the limbs are found rigid after the fit had passed away; sometimes there is but one fit, but more frequently there are two, three, or four. When convulsions are present there is no fever, and, *vice versâ*, when febrile symptoms constitute the commencement of the malady there are no convulsions.

2. *General paralytic symptoms.*—When first observed the paralysis is usually at its maximum, both of intensity and extent. It is often general—not only the muscles of all the limbs, but even those of the trunk are affected; the child can neither stand nor sit up, nor use its arms. The lower limbs are more distinctly and more frequently affected than the upper, and it is very rare to find paralysis of the sphincters. Paraplegia is the most common form observed at an early period, and this form of paralysis may become persistent; but more frequently the "clearing up," if I may use the expression, of the paralytic state extends beyond the arms, and in a very short time—viz., from three to fifteen days, only one extremity remains affected. One of the lower limbs is more often paralysed than one of the upper; sometimes the right arm and the left leg are weakened: sometimes, but very rarely, there is hemiplegia.

The electric irritability of the muscles is distinctly diminished at the onset, and coolness and wasting of the limbs set in almost immediately.

There is no constant change in the sensibility of the skin, or of the organs of special sense; but reflex movements are sometimes, although not always, abolished in the affected limb.

Paralysis of the kind now described I have occasionally seen in the condition of *pregnancy*, having its onset in a precisely similar manner—i.e., appearing as general palsy after two or three days of slight febrile disturbance, and then becoming localised in one limb. Apart, however, from pregnancy—which condition bears some strong resemblances in regard of pathological tendency to the state of infancy,—I do not know of any disease in the adult which exhibits the clinical history now detailed. Ordinary wasting palsy, which is unfortunately but too well known, differs widely in its mode of onset, and in the distribution of its symptoms.

3. *Stage of limited paralysis.*—The paralysed limb *wastes*, it fails to grow at the same rate as the healthy limb, and thus it often remains withered, smaller, and shorter than its fellow. But long before any difference can be detected in length, or even bulk, there is a distinct coolness, flabbiness, and softness. The rapidity with which

wasting occurs is remarkable; in the course of a few weeks it is appreciable not only by the hand and the eye, but by the measuring tape. In this disease, as in all others which affect the size of limbs, there is often an amount of malnutrition, that may be quite obvious to the sight and to the touch, which measurements fail to represent; and surprise is frequently felt when a disparity, very obvious to the eye, is recorded in small fractions of an inch. But in the wasting paralysis of children the amount of inequality is often very great, and may be recognised, at once and to the full, by measurement. Thus in C. D——, the calf of the right leg was 10¼ in. in circumference, that of the left only 8 in.; and here there was no shortening of the limb. That the failure of nutrition was mainly in the muscles was indicated by the fact that the right ankle was 7¼ in. in circumference, the left 7¼ in. Where the muscles were involved the diminution on the paralysed side was 1—5 of the circumference: where the muscles were not included the difference was only 1-28 of the circumference. In the same case there was obvious wasting in the left gluteal region, but it is impossible for me to tell you how much wasting there was in this unmeasurable locality. A similar difficulty prevents me from telling you exactly how great was the wasting in E. F——, for here the malnutrition was most obvious in the deltoid muscle, in the pectoralis major, the supra-spinatus, and infra-spinatus scapulæ. It is so evident, however, to the eye that no other measurement is needed to tell you that it is very great. The head of the humerus may be seen and felt almost as distinctly as if it were removed altogether from the soft parts; for the bone appears and feels as if covered only by the thin and flexible skin of childhood. Again, in G. H——, whom you have seen recently in Ward 3, and whose early history was similar to those I have described, it was impossible to represent fairly in figures the amount of wasting, for both lower extremities were affected, and that to about an equal degree. The girl was generally thin, but the malnutrition of the legs, as compared with the arms, was most obvious to all who saw her.

Sometimes particular muscles, or groups of muscles, are especially affected; thus, in the upper limb the muscles around the shoulder, and in the lower extremity the extensor muscles lying outside the tibia. Of the former, E. F—— afforded an excellent example; of the latter you have seen several illustrations, observing sometimes that instead of the natural roundness there was distinct hollowing external to the tibia.

The *degree of paralysis* varies from slight weakness to absolute immobility. If the leg be affected a child may simply "drag its foot" in walking, or it may be unable to do anything but crawl upon the floor. When G. H——, who is now quite well, came into the hospital she could not stand, for in her the affection was paraplegic, and the wasting and weakness of the glutei were carried to an extreme degree.

The *electric contractility* of muscles is peculiar and interesting. In some cases it is entirely lost, but in others it is only diminished, exhibiting, except in the fact of diminution, its ordinary characters. But what is very remarkable is the following fact, that in certain medium cases, where the loss of voluntary power may be complete, but the failure of nutrition by no means extreme, the muscles respond at once to the application of an interrupted battery current of low intensity, and at the same time exhibit no action when an induced current of high power is directed upon them. This has now been observed so frequently that it must be regarded as a common—not an exceptional—fact in the history of such cases; and it may be displayed very readily by a comparison of the paralysed with the healthy limb. An induced current which causes violent contraction in the muscles of the healthy side awakens no movement in the wasted limb; and, *vice versa*, an interrupted battery current, which is too feeble to cause any contraction in the healthy muscles is sufficient to produce distinct action of the wasted muscles. There would appear, therefore, to be an exalted readiness of response to one form of electricity, a diminished readiness of action to the other. This condition is not limited to the paralytic state I am now describing. It has been observed in other diseases by myself, and by my friend, Mr. John Netten Radcliffe, who will, I hope, furnish the results of his large experience in this matter in a collected form.

The *sensibility* of the skin in the paralysed limbs I have examined very carefully, and have found it to be normal, when tested by the compasses, by the application of heat or cold, by pinching, pricking, and the electric brush.

The *reflex motility* has been, so far as I have seen, utterly abolished in those limbs which have been completely paralysed to the will.

The *temperature* of the paralysed extremity has been reduced in all cases that I have seen. This reduction has been obvious to the hand, and has been verified by the use of the thermometer. I have found a difference varying from five to nine degrees Fahrenheit between the limbs of the same patient, and this after taking the utmost care to avoid sources of fallacy.

The state of *mind*, and of the *general bodily health*, may be, and usually is, that of perfect health; and it is almost infinitely rare to find anything like bedsores, or localised malnutrition of the skin.

4. *Consequences of paralysis.*—These are either simple uselessness, and all the discomforts which may follow therefrom in paralysis of any kind; or they are certain deformities which arise from the peculiar distribution of the paralysis and wasting. It is not my purpose to give you any description of these deformities, but you will at once see that they are the most marked when the paralysis is limited to particular groups of muscles; for then the antagonists of those muscles are thrown into overaction, and distortion of the limb is the result.

5. *Anatomy.*—The *muscles* and *bones* are small, and the former often lose all their characteristic structure; and, until recently, it has been affirmed that beyond these changes in the limbs nothing abnormal was to be found. You may read descriptions of post-mortem examinations in which it is stated that the brain, spinal cord, and nerves were in their natural state; and it is only of late that, by a process of more minute investigation, the real nature of the malady has been discovered. M. Laborde has shown that there is a distinct change in certain portions of the *spinal cord;* that the anterior columns are more translucent than natural, and present a very appreciable greyish-rose tint to the naked eye; and that

a similar change may be observed, although to a less degree, in the lateral columns. The consistence of these tracts of nerve-tissue is diminished; and upon microscopic examination there may be observed a marked proliferation of the elements of the connective tissue, cells and nuclei being dispersed in the midst of a finely granular substance, in which there are fibrils of extreme tenuity. In the parts which are the most affected nervous tubules are either lost altogether, or they present a varicose appearance; while the other portions of the spinal column preserve a perfect integrity.

6. *Treatment.*—There is nothing special to be observed in the treatment of the early febrile symptoms; but it is of the very highest importance that the nature of the affection should be recognised as soon as possible, and that the paralysis should be encountered vigorously.

The treatment which has been the most efficacious has been the judicious use of electricity—viz., its application, in proper form and in suitable intensity, to the affected muscles. It often happens that, as in the case of G. H—— which you have lately seen, the recovery is complete; and this after several years' duration of the paralysis. The most efficacious application is that of the interrupted battery current; and a curious fact is commonly elicited by its continued use. You find, for example, a group of wasted, palsied muscles, inactive to faradisation, but responding readily to galvanism. You apply galvanism on several occasions, and observe that gradually some voluntary power returns, and with this a diminution of response to the agent you are employing. The same muscles were unaffected by faradisation at the first; but now—as their voluntary power returns and their contractility to the battery current diminishes—they act readily when the induced current is applied. At this period in the history of a case I have found it desirable to change the form of electricity, and to employ faradisation, carefully avoiding the use of such power as shall cause pain to the patient. Galvanism requires most patient exhibition in cases of this kind: for many months it should be continued, provided that there be the smallest improvement in voluntary power, or in the nutrition of the limb. When, after six or eight applications of both faradic and battery electricity, there has been no appearance of electric irritability, I have seen no good result from its continued use. It is probable that, under such circumstances, the muscles are so changed in structure, or, rather, so thoroughly destroyed in proper texture, that nothing can restore them; and the only thing that can be done is to prevent the deformity which might arise from the unopposed action of those other antagonistic groups of muscles which yet retain their integrity.

Electricity may have its action assisted by frictions and passive movements; but I have not seen any definite result, *quoad* the paralysis or wasting, from the exhibition of drugs. Of course, if the child be out of health, you would do your best to bring it into a more favorable condition; and in one case you would give alteratives, in another iron, in a third cod-liver oil, and the like. But your main object must be to treat the muscles, and to treat them without delay.

7. Your *prognosis*, in a case of infantile paralysis, is bad when the loss of voluntary power is absolute, when the wasting is extreme, and when, after three or four applications of electricity, you can detect no trace of contractility in the muscles. It is bad under such circumstance whether the disease be of old-standing or of comparatively recent development. On the other hand, if some slight voluntary power remain, or even if, when it be lost altogether, you still find in the wasted limb some flickering contraction as you apply the battery current, you may confidently expect a cure or a notable improvement, although the wasting and the paralysis may be highly marked, and although they may have existed for many years, provided that you will persevere steadily in directing the course of treatment that I have described.

Even at the very onset of the malady you may form some notion of its probable severity by regarding the intensity of the initial fever; and you may, when the paralysis is passing into its period of localisation, ascertain by an electric examination the direction in which the malady will throw its strongest forces. Thus taught, you may often prevent the occurrence or full development of symptoms which are very obstinate when once established, and may relieve your patient, by the treatment of a few weeks, from that which, if once firmly rooted, may require twice as many months to cure.

# Clinical Lecture

ON THE

# SIMPLE CYST CONTAINING SEROUS FLUID DEVELOPED IN THE MAMMARY GLAND.

*Delivered at Guy's Hospital.*

By John Birkett, F.R.C.S.

Surgeon to the Hospital.

It may be in the recollection of some gentlemen who now listen to me that, last year, I directed their attention to a class of tumours found in the breast which contained fluid, and depended upon the development of the membranous sac of the ecchinococcus.

If you refer to the report of that lecture in The Lancet, you will read that the fluid in the sac showed very characteristic peculiarities. Tumours thus formed of a closed sac containing fluid so closely resemble each other, as well as also small solid growths, that the surgeon must be glad to be able to discriminate between one disease and the other, after a careful examination of the fluid which he is able to remove. Further, a knowledge of the composition of the fluid not only leads to accurate diagnosis, but to the suitable treatment and correct prognosis of the diseases.

I propose, therefore, in this lecture and the following to consider with you some other diseases of the breast produced by the development of cysts. At the present day, the expression "cystoma" is employed to describe a tumour composed of a single cyst or of several cysts. The cyst is a closed membranous sac. The contents of the cysts vary characteristically in chemical composition. The disease upon which I propose to fix your attention at this moment depends upon the existence of a delicate fibrous membrane enclosing a serous fluid. Our attention will be first devoted to the examination of the walls of the cyst; secondly, to the peculiar chemical composition of the serum it circumscribes.

But I will now read you the history of a typical case of this kind, which you saw in my ward in November last.

Case 1.—A single woman, aged fifty-four, a domestic servant, in the enjoyment of good health was admitted into Martha ward on account of a tumour in the right-breast. The gland was small and atrophied. Her attention was first directed to the swelling two months since, quite accidentally, for it had never been painful. Amongst the axillary lobes of the gland there was a globular tumour about two inches in diameter, which slightly elevated the integuments. It extended through the body of the gland-tissue, and was distinctly identified with it. The fluctuation of fluid could be indistinctly felt over its surface, although its resistance to the pressure of the finger might lead a superficial observer to suppose the tumour was solid. The nipple was not affected by the swelling, nor were there any axillary lymphatic glands enlarged. The patient remembered a contusion of this breast about three years ago. It was not difficult to distinguish the presence of fluid in a circumscribed sac—that is to say, it was palpably a cyst with fluid contents. On November 27th a trocar and canula were introduced, and four drachms of pale-yellow serum, very slightly turbid, flowed through the latter. This serum showed an alkaline reaction; it was not coagulable either by the application of heat or the addition of nitric acid. The puncture rapidly healed and she left the hospital a few days afterwards well. I have seen the patient since, and she was quite free from the tumour. In place of it there was a slight hollow, between the lobes of the gland as if they had been separated by its pressure.

Cases of this kind are rare. In the practice of the hospital very few have occurred, but in private I have seen several. Surgical authors have not described these cysts very fully. Sir B. Brodie writes: "A thin membranous cyst, containing a transparent watery fluid, without coagulable matter, is occasionally found in the breast....... This disease is probably rare, as only two examples of it have fallen under my observation."* In order therefore to illustrate the characters and varieties of this disease, you must allow me to introduce some cases which have been in the hospital, or which I have seen in private practice.

We have in the museum a preparation of a cyst of this kind, together with a small portion of the mammary gland which surrounded it, which I removed from the breast of a woman in 1851. This drawing also shows the appearance of the cyst when recently dissected. Its walls are very delicate; the internal free surface is smooth and bright, like the surface of a synovial capsule; and its outer surface is firmly attached to the surrounding gland-structure, which does not, however, show any morbid alteration. A delicate tesselated epithelium lines the internal surface of the cyst.

Case 2.—The patient was a married woman, but sterile; thirty years old. She had not enjoyed very good health. The catamenia did not appear until she was twenty-one years old; and she was nervous and hysterical. The mammary glands were hard and disc-like. Pain attracted her attention to the right breast when she felt "a lump," about an inch in diameter, amongst the axillary lobes. This was five months since; when I saw it the swelling was about double that size. She complained of a shooting and pricking pain in the swelling, especially after the pressure of the dress was removed. The tumour was movable with the gland, to the tissues of which it was firmly united; together they rolled freely beneath the integuments; and the true swelling, irrespective of the gland-tissue, felt very hard. It was also elastic, and fluctuation of fluid was perceptible. Through a small incision in the skin I removed the cyst, together with a small piece of the breast. The wound soon healed. In 1853 I saw this patient with a small cyst of a similar nature in the right breast amongst its sternal lobes, and a smaller one in the left. Knowing they were innocent, I did not disturb them.

Case 3.—In 1860, Mr. Leslie, of Alton, was kind enough to send me a domestic servant, from whose right breast he had removed, by puncturing a cyst, "about two ounces of straw-colored fluid." In this case the cyst collapsed, and never refilled. That operation was performed in 1857, and when I saw the patient there were several small cysts in both breasts. The patient was single, and when the cysts were forming was between forty and fifty years of age. The mammary glands were well developed, the catamenia normal, and her general health good. In 1864 there was not a trace of the cysts in either gland; they had all disappeared.

Thus we may meet with cases in which not only a single cyst, but several cysts, may be developed and both breasts become affected. The last case also demonstrates the fact that as the serum becomes absorbed the tumours disappear.

Occasionally these cysts reach a considerable size, and the secretion of the fluid is rather rapid. Under these circumstances great apprehension is excited, and the satisfaction of curing the case is in proportion enhanced.

Case 4.—A lady was under my care in 1860, with a swelling in the left mamma, which had been accidentally noticed six months before she consulted me. She was single, between forty-five and fifty years old, in good health and capital spirits. The catamenia had ceased about the period when the left breast enlarged. Two months before she detected a tumour among the clavicular lobes of the organ, which had been painless, and was now from three to four inches in diameter. The elasticity of the swelling and fluctuation clearly led to the discrimination of its composition—i. e., it was undoubtedly a circumscribed collection of fluid. Paracentesis with a trocar and canula was performed, and four ounces of greenish-brown serum escaped. After standing in a test-tube some hours no change took place in it, nor did it coagulate by heat or acid. The puncture healed immediately, and two months afterwards the patient continued well, the fluid not having re-formed.

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* Works of Sir B. Brodie, vol. iii., p. 229.

Case 5.—The following year I saw another single lady, between forty and forty-five years old. She enjoyed good health, the catamenia were persistent, but the mammary glands had always been unusually sensitive just before those periods. Three months before I saw her she accidently felt a small and very hard swelling among the axillary lobes of the left breast, which had not, however, given her any pain. She showed me a globular swelling close beneath the integuments, elastic, firm, and rising rather above the level of the anterior surface of the true gland. The detection of fluid within a cyst was very easy. I punctured the cyst with a trocar and canula, and withdrew one ounce and a half of slightly turbid serum, which after rest in a test-tube, deposited a very little flocculent precipitate. The serum did not coagulate by heat or acid. The cyst collapsed, and never refilled.

But we frequently meet with cases in which the assistance derived from the manipular examination of the tumour is so slight, and the sensation of fluctuation in the fluid contents so indistinct, that the surgeon is unable to satisfy himself that only serum forms the swelling. You must be prepared to meet with cases of this kind, which, when they occur at that period of life during which carcinoma is so commonly developed, excite the most unbounded apprehension and fears of all the horrors attending that direful malady. We have, however, the gratification of knowing that the trifling operation of introducing a fine canula, and emptying the cyst, not merely cures the complaint, but at once removes every source of anxiety. As, for example, in a case of this kind.

Case 6.—A patient, forty-eight years old, married, but sterile, accidently discovered a small hard lump among the axillary lobes of her left breast only fourteen days before I saw her. Certainly the tumour was very firm, even hard, and quite distinct enough to make any surgeon careful as regards its diagnosis and prognosis. Besides, the smallness of the swelling and the ample proportions of the mammary gland made its critical examination extremely difficult. The tumour was not more than one inch in diameter; but, from being surrounded by indurated gland-tissue, it felt much larger. Opinions differed upon the structure of the swelling; therefore I resolved to introduce a canula to ascertain its contents. This was done, and two and a half drachms of serum flowed out. This was odorless, clear, of dark greenish-brown color, alkaline, and was not affected by heat or acid. This patient was at once relieved, and the cyst never refilled.

Case 7.—Another patient whom I lately saw, through the kindness of one of our physicians, was a single lady, fifty years old. She had enjoyed uninterrupted good health, and accidentally discovered, about two months before her visit to me, a small swelling in the left breast. The catamenia had ceased, but the mammary glands were not atrophied. Around the central swelling, which was a cyst filled with serum, and not so firmly united to the gland-tissue as usual, a sort of anular fossa was perceptible. The circumstance rendered the fluid more easy of detection than usual. I introduced a trocar and canula at once; six drachms of pale brownish serum escaped, and the complaint was cured. This serum did not change by rest or cooling, nor did it coagulate by either heat or acid. The cyst never refilled.

It is highly probable that some of the cases called "scirrhus" are of the kind described in this lecture. When such tumours disappear the patient has the opportunity of reporting the cure of a cancer. I saw a patient, under the care of Mr. Few, of Ramsey, Hunts, in 1856 who very obligingly sent me the information a few days since to the effect that the tumour had entirely disappeared.

Case 8.—The woman, forty-two years of age, married, but sterile, was very healthy. She observed, six months before her visit to me, a hard lump amongst the sternal lobes of the left breast. I was able to distinguish the fluctuation of fluid in a swelling about one inch in diameter. Manipulation caused pain. The tumour had not increased since its discovery. After constitutional treatment, of an alterative and tonic character, it slowly dispersed in three or four months.

Case 9.—A healthy, prolific lady, thirty-nine years old, noticed a hard lump among the clavicular lobes of the right breast a year and nine months before she asked me to see it. I found a circumscribed collection of fluid, about one inch in diameter, very hard, and causing a throbbing, burning pain. That was in 1856. The general health was improved, an ammonia and mercury plaster was applied, and the tumour disappeared.

Case 10.—That the presence of fluid may be overlooked is shown by the following case of a poor Irishwoman, sent to the hospital by Dr. Perrochand, of Boulogne. She was a married but sterile woman, forty-six years old, who observed, two months before admission, a hard lump amongst the clavicular lobes of the right breast. It was painful when pressed I excised that which I considered to be a solid growth; but it proved to be a very tense cyst, containing serum, as above described. A preparation of this cyst is in the museum. From this case we may take a lesson. Carelessness in diagnosis must be guarded against.

Case 11—Occasionally severe local pain is felt as the consequence of the presence of a cyst of this kind. The irritation of the collateral nerve is probably produced by pressure on one of the intercostal filaments, or by its being stretched by the tumour. The pain may even extend in the course of the distribution of the other branches of the intercostal nerve, and be felt in the arm, neck or back. Relief is at once afforded by the removal of the exciting cause. A single woman, thirty-five years old, was sent to me by Dr. Pye-Smith, suffering from great pain in the left thoracic region, which she stated arose after the observation of a small lump in the sternal border of the left breast. There had been a tumour resting on the fifth intercostal space six months, which from its situation, might press upon the filaments of the nerve coming through the foramen in that region. The pain shot along in the course of the distribution of its filaments, and even still further, but clearly in relation with the anastomoses of the nerve. The tumour was formed of a collection of fluid. By using a trocar and canula, one drachm and a half of turbid, brown, alkaline, and uncoagulable serum was removed. The pain left the part after the removal of the tumour.

Case 12.—Inflammatory action may be excited in these simple cysts by rough handling. Under these conditions the local symptoms resemble those of the ordinary character preceding suppuration. The complaint may then be mistaken for an abscess. An instance of this kind occurred as follows. A sterile, but healthy married woman, thirty-five years old, having noticed for a few weeks a tumour in her right breast, consulted a medical man, who caused great pain by his roughness and pressure in its examination. When I saw her three days afterwards, the part was very painful, hard, larger than it was before, and the skin over it was red. I expected an abscess would form. Goulard lotion was applied, after which the pain subsided, and in a few days the existence of a simple serous cyst was easily diagnosed.

Let us now apply the knowledge derived from the preceding details to practical advantage, and endeavor to eliminate those leading facts which may aid us to form a correct diagnosis, and institute a successful treatment, of these harmless formations.

First, in relation to the ages of the patients at the time when the tumour was observed. The extremes were thirty and fifty-four years; eight of the whole number being between forty and fifty-four. Now that happens to be the period of life at which carcinoma is most commonly developed, and when any woman discovers a hard tumour in her breast at this age she will at once conclude that it must be cancer.

We may next observe that six of the patients were married women, and six single. But of the six married, four were sterile. The physiological fact deduced from this examination of the procreative function is, that these simple cysts are probably associated with a state of the breast produced by functional inactivity. For in one case only had the affected gland performed its natural functions; in eleven it had never been stimulated to do so.

The general health of the patients was usually good. Some had been slightly inconvenienced by catamenial irregularities but not to a severe degree.

We must next fix your attention on the aid derived from the tactile examination of the tumour. The objective signs are firmness, even hardness, a globular, uniform body produced by some circumscribed growth embedded between the lobes of the gland, or rising upon their surface. But you should be cautious how you estimate the size of these tumours. If you grasp the tumour and surrounding gland-tissue between the fingers and thumb, you will imagine that there is a much larger growth than really exists; but if you carefully define the limits of the tumour alone by using the point of the index finger only, its dimensions may be meted with sufficient accuracy. The patient may be placed in the recumbent posture with advantage during the examination; but in every objective examination of a tumour developed in the breast, the surgeon has to decide, first, whether it consists of a solid growth or of fluid, or of both together. This, the primary object in the examination, must be ascertained with the utmost precision. Now, by repeated practice you will be able to discriminate between a cyst containing fluid and a solid growth by the sensation, termed "fluctuation," which fluid, when compressed, communicates to the finger tip. If this sensation be not distinctly felt, which happens when the cyst-wall is tightly stretched, the elasticity of the tumour forms a marked characteristic of small circumscribed collections of fluid. Sometimes in these cases a very peculiar furrow has been felt running round the tumour between it and the gland-tissue. That circumstance I regard as a very important aid to diagnosis. Having then arrived at the conclusion that the tumour contains fluid, the surgeon should insert a very fine trocar and canula with the object of obtaining some of it for examination. That done, and a few drachms of colored, clear, or turbid serum having flowed out, which on examination shows an alkaline reaction, and which does not coagulate either with nitric acid or when heated, the diagnosis is clearly established. Thus, in adopting the above measure, we at the same time perform the operation suited for the cure of the complaint, as the cases show that the cyst does not refill.

In another lecture we shall examine those cysts which contain coagulable serum.

# Original Papers.

## ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

### AS EXEMPLIFIED IN PRIVATE PRACTICE.

By Charles J. B. Williams, M.D., F.R.S.,

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*(Continued from September No.—p. 583.)*

### CONSUMPTION ORIGINATING IN INFLAMMATION.

Case 32.—A gentleman aged thirty-two, who had lost a brother and sister from consumption; first consulted Dr. Williams Jan. 25th, 1855, and stated that a year ago he suffered from pleurisy of the left side, and since that time from weakness and short breath. No cough or expectoration, but lately had pain below the left clavicle. Physical signs: Extreme dulness over the whole of the left side of chest, with only weak breath in upper portion; expiration and voice tubular; heart close to chest-wall; and felt over a large space. Arcus senilis well marked; urine scanty. Has taken cod-liver oil, but it purges. Ordered oil combined with tannic acid and infusion of orange; iodine liniment to be rubbed on chest.

May 23rd.—Oil agreed well. Much improved in flesh, but still weak; urine still thick; appetite bad. Physical signs: Left side a little less dull, but no more breath-sound or motion. To take iodide of potassium, liquor potassæ and sarsaparilla.

Aug. 13th.—Has been at Ems, where the waters proved strongly diuretic. Breath and strength improved, but has now slight cough. Physical signs: Still dulness, although less, and weak breath in left chest.

May 6th, 1856.—Continues pretty well; but often pain in left chest, and urine turbid, unless when taking the iodide and potass mixture, which has been continued at times. Some further diminution of dulness, and slight return of breath-sound chiefly in upper parts.

Oct. 23rd.—Pretty well, till five weeks ago, large boils appeared on the cheek and throat. Chest continues to improve. Ordered chlorate of potass, with nitric acid and quinine.

March 17th, 1857.—No more boils, but lately is thinner and weaker. Still defective breath, and dulness in lower left chest. To take oil in quinine mixture.

June 4th.—Better in flesh and breath; also in chest sounds.

Oct. 14th.—Lately has slight cough and more pains in chest. Has lost flesh. No oil or medicine lately.

April 21st, 1858.—Well through winter, but in last two weeks cough and yellow expectoration. Signs the same. Oil and acid tonic to be resumed.

July 14th.—Took oil and tonic six weeks, and lost cough. In last month large boil on neck, now discharging. To take syrup of iodide of iron, tincture of calumba, and glycerine.

March 5th, 1859.—Passed winter pretty well, but continues thin. In last week cough and expectoration. Breath still weak, and limited motion in lower chest, but sound on percussion clearer. In left scapular region stroke-sound is tubular.

This patient has not been seen since 1861, when he was reported to be well and improving in breath, and may be presumed to have recovered.

Case 33.—A builder, aged thirty-seven, first consulted Dr. Williams on Jan. 13th, 1842. Has lost a child from tuberculous disease of the lung. Twenty years ago had inflammation of the chest, for which he was bled, and was very ill for six months. Remained very weak till two years after, when he went to Ventnor, where he improved sufficiently to resume his occupation, but was always short-breathed, with more or less cough. Five years ago, after much exertion, was attacked with pain in the chest and dyspnœa, lasting six weeks, and has had cough every winter since. Symptoms worse since September, after exposure, with loss of strength and flesh. Physical signs: Dulness under both clavicles; deficient breath under left; and bronchophony, almost amounting to pectoriloquy, under humeral end of right clavicle. Expectoration scanty, sometimes tinged with blood. Ordered iodide of potassium, sarsaparilla, and liquor potassæ; also counter-irritation.

Dec. 1842.—Much improved in flesh and strength; little or no cough; dulness diminished; tubular sounds almost gone.

June, 1845.—Heard from Dr. Martin that he was quite well, and busy at work in the Isle of Wight.

Well and active in 1867, *twenty-five years after his first visit, and forty-five after his first attack of inflammation of the chest.*

It is by no means clear that the disease in this case ever assumed a decidedly tuberculous character; but it may be considered one of cacoplastic deposit resulting from inflammation, and capable of degenerating. It is a significant fact that one of his children has died of tubercles in the lungs.

Case 34.—A young gentleman, aged fourteen, first seen by Dr. Williams on Aug. 3rd, 1843. Three years ago had inflammation of the chest, for which the patient was bled five times and otherwise severely treated, and suffered much from faintness and palpitation for several months afterwards. A similar attack occurred half a year later; and since then he has had occasional cough, which during the last six months has become constant, and is accompanied by abundant green expectoration, sometimes fetid. Did lose much flesh and strength; but he has lately regained them, and his color is good. Physical signs: Dulness and deficient motion in the upper right front. Tubular sounds and loud mucous or sonorous rhonchus in the mammary region on deep-breath. Some dulness and obscurity of breath in upper left. Right side three quarters of an inch larger in circumference than left. Ordered iodide of potassium and sarsaparilla, with an iodine liniment, also a linctus containing stramonium.

Sept, 15th.—Expectoration diminished, and now opaque white not fetid. Flesh and strength good, and face blooming. Physical signs: Less rhonchus, but pectoriloquy below right clavicle. Tubular breath below left clavicle. Ordered a tonic of nitro-hydrochloric acid and sarsaparilla. To winter in Madeira.

July 1st, 1845.—Lost cough and expectoration soon after his arrival in Madeira, and has remained well since, except short breath and occasional epistaxis. Collapse and dulness in right upper chest; loud tubular sounds below the clavicle; breath free on left side. Ordered a liniment of camphor and cantharides.

Oct. 13th, 1846.—Wintered again in Madeira without cough, except for about a month. Well grown and active, but thinner. Still collapse of upper right chest, with tubular sounds, but more vesicular breath. Left side moves more slowly and fully than the right.

April 21st, 1849.—Has wintered successively in Ventnor, Devonshire, and Oxford well. Walks several miles, and breath improved. Has only occasional cough, with copious expectoration. Some dulness within right scapula, and marked tubular sounds below right clavicle; but vesicular sounds audible everywhere, with fair motion of the chest. Upper intercostal spaces protrude on cough (partial emphysema). Took oil afterwards, got quite well, and has required no advice since.

Was heard of as quite well in 1864.—*twenty-one years* after the first visit, and *twenty-three* after the first attack of the inflammation of the chest.

Case 35.—A merchant, aged forty-five, first consulted Dr. Williams July 13th, 1855. Was well till eight months ago, when he caught a severe cold, with cough and yellow expectoration, accompanied by loss of flesh and lately by very short breath. Took oil in the winter, but soon sickened of it. Physical signs: Extreme dulness on left side of chest, mostly in upper front, where there are large tubular sounds, and some liquid rhonchus, almost gurgling. Less dulness behind, but tubular sounds and mucous rhonchus. Ordered oil in a tonic of nitric and hydrocyanic acids and strychnia, and counter-irritation with acetum cantharidis.

April 19th, 1856.—Wintered at Hastings, and very much improved under the above treatment.

Now walks six miles. Still marked dulness and obstructed breath in left front; but voice less tubular. Coarse crepitation in parts.

Nov. 28th, 1856.—Passed summer well, but six weeks ago brought up half a pint of blood, and was largely leeched. Has taken oil regularly except during six weeks, and is quite stout. Breath still short, and cough has increased in last ten days. Physical signs the same, except the addition of loud tubular breath above right scapula. To continue oil, but in tonic of nitric and hydrocyanic acids with iodide of potassium and tincture of orange.

April 28th, 1857.—Continues well, and fatter than ever. Breath short, but walks six miles. Just now has headache and increase of cough.

Dec. 7th, 1859.—Passed last winter at Hull, and pretty well; but breath short, and had morning expectoration. No oil for one year. Has lately had more cough, and slight hæmoptysis. Dulness, cavernous croak and voice in upper left chest.

Feb. 21st 1861.—Has taken oil; but was shut up at Hull all the winter. Lost flesh, and lately appetite and strength. Cough increased, and occasionally streaked expectoration. More cavernous sounds in upper left, front and back. Ordered strychnia with oil.

March 29th, 1862.—At Hull through the winter, and not confined to the house; but breath shorter, and losing flesh since August. Three weeks ago had pain in left side, increase of cough, and expectoration, which was more opaque. Symptoms relieved by blisters, and patient has resumed the oil and strychnia since. Dulness and absence of vesicular breath in left lung. Large tubular sounds and crepitation in upper front and back. Cavernous sounds below clavicle.

March 24th, 1864.—Again recovered, and has been generally well. Has little cough, but breath very short. Weighs twelve stone. Attends to business. No oil for one year. Less dulness; no cavernous sounds, but breath weak and subcrepitant. Tubular voice, and little breath at and within left scapula. Large tubular sounds above right scapula. Ordered nitric acid, tincture of nux vomica, and glycerine.

March 7th, 1865.—Fatter, and pretty well; but breath short. Six weeks ago had hemiplegia of left side, and confused state of mind, with headache; but after leeching and blistering, was relieved. Moderate dulness, crepitation, and croaky sounds over the whole left chest. No large tubular sounds, except above right scapula.

June 1st, 1866.—Pretty well; but lately palpitation, and pain in left arm. Breath sounds feebly audible throughout left lung, only tubular in back.

April 15th, 1868.—Was pretty well; but during last year breath has become shorter, and palpitation has increased. Has little cough, with only transparent expectoration. No oil for two years and a half, and has spent last winter at Hull. More dulness in left front and upper back, and large tubular or cavernous sounds above left scapula and immediately below left clavicle; dulness and obstruction signs in lower part of left lung, with some sibilus; more tubular sounds in upper right chest. Heart's apex drawn up, and beating at left mamma; action weak.

This patient still attends to business, but has lost ground since 1866.

The remarkable degree of dulness in the left chest found on first examination makes it probable that the disease was inflammatory, causing a dense cacoplastic deposit. This was afterwards partly softened and partly absorbed; but in the last two years more deposit took place, and affected the upper part of the right lung also. There was contraction also of the left lung, shown by the heart being drawn upwards. More than *thirteen years* have elapsed since the first symptoms occurred.

Case 36.—A surgeon, aged thirty-four, consulted Dr. Williams July 3rd, 1845. Seven years before he had rheumatic fever, and inflammation of the chest with effusion into the pleura, and ever since had suffered from cough and shortness of breath. Had been worse since May, when he caught fresh cold, and now pulse is quick and weak, and expectoration purulent. Physical signs: Dulness in right chest chiefly upper parts, where some subcrepitus; small tubular sounds below; tubular expiration above right scapula. Ordered a tonic containing nitro-hydrochloric acid, and counter-irritation with acetum cantharidis.

July 20th, 1846.—Improved, and has continued in practice, but takes great care of his health. Still dulness in upper right chest, with mixture of tubular sounds and subcrepitus.

June, 1867.—Has been living an easy life for several years in charge of an invalid. His breath has been always short, and more so of late years, as he has become stout, with more or less constant cough and wheezing. Physical signs: Dulness and cavernous sounds at right scapula; tubular above left scapula; lower and anterior portions of the chest very wheezy, and clear on percussion (emphysema).

*Twenty-two years* have elapsed since this patient was first examined, and *twenty-nine* since the inflammation from which originated the disease in the lung. This was long ago arrested in its phthisical career, but the contraction of the cicatrices and consolidation around the cavities have produced emphysema in other parts of the lung, and the limited health and activity of an habitual asthmatic.

June, 1868.—Heard lately of this patient's death from increasing dyspnœa, with œdema of the lower part of the body.

## STATISTICS OF CONSUMPTION.

### BY DR. C. T. WILLIAMS.

It rarely happens that physicians in large private practice lay before the profession the collective results of their experience. Remarkable or extraordinary cases they may be induced to record, as opportunity offers; but the common events of ordinary disease, which come under their observation daily, and on which they have to exercise their judgment and apply their knowledge so constantly in practice, are seldom noted with sufficient precision to be suitable for publication. Nor is this to be wondered at, for it requires no small amount of resolution and perseverance to take careful notes of cases amid the hurry and fatigue of a busy professional life, unaided by registrars and clinical clerks, who render the recording of hospital practice comparatively easy. Yet it cannot be doubted that from private practice may be obtained an amount and a kind of knowledge which hospitals cannot supply. Whether as regards the experience and skill of the physician, who, after a career of hospital work, concentrates his improved powers of observation and treatment on private patients; or whether, as regards the class and resources of these patients, who may remain under observation much longer than those in a hospital, and who may avail themselves, as the latter cannot, of the advantages to be reaped from change of climate, mineral waters, various kinds of exercise, avoidance of fatigue and cold &c.,—it is obvious that much valuable and peculiar information may be expected from the faithful records of practice among the well-to-do classes of society. It is therefore, to a certain extent, on the advantages arising from the class of patients, the absence of certain unfavorable conditions, such as povety, injurious trades, and the like, that the experience comprised in these papers depends for interest. Several authors have given results of their hospital practice; and three years ago the able and laborious work of my colleague, Dr. J. E. Pollock,* appeared, founded chiefly on his experience of the out-patient department of the Brompton Hospital, supplying excellent statistical information as to consumption among the lower classes. To this treatise I am indebted for many valuable hints, and shall make many references to it.

The object of the present paper is to give some results of 500 cases of pulmonary consumption, selected, as was stated in a previous paper, on the grounds of their having been *at least one year under observation*, and of their having first consulted Dr. C. J. B. Williams during the period of sixteen years, commencing with 1842 and ending with 1857 inclusive. Examples of these cases have already been given, with a view to illustrate the duration, varieties, and treatment of the disease; and attention will now be directed to a summary of results from the whole number, as gleaned from tables, in which the information concerning them was arranged under the following headings:—Age. Sex. Hereditary predisposition. Occurrence of hæmoptysis. Date of first symptoms. Date of first visit. State of lungs at first visit (as evidenced by physical signs). Treatment. Result. Duration of disease.

*Age.*—The distribution of the cases among the different periods of life was as follows:—

| | |
|---|---|
| Under 10 years ... ... ... | 8 |
| Between 10 and 20 ... ... | 71 |
| " 20 and 30 ... ... | 198 |
| " 30 and 40 ... ... | 150 |
| " 40 and 50 ... ... | 54 |
| 50 years and upwards ... ... | 19 |
| | 500 |

The great preponderance seems to be between the ages of 20 and 30, and constitutes nearly two-fifths of the whole number; next in order comes the period 30 to 40, which includes three-tenths of the cases; while those between 10 and 20 are more numerous than those between 40 and 50. Dr. Pollock's observations on the ages of 1200 cases of consumption, whose duration varied from half a year to four years and upwards, tallies with the above; for he says, "the age of the greatest prevalence of consumption in all its forms is from 20 to 30; next to which is the decade between 30 to 40; then the period under 20; and the least of all is that over 40."

*Sex.*—311 were males, and 189 females; or 62·2 per cent. of the former, and 37·8 per cent. of the latter. Of Dr. Pollock's cases 60·75 were males, and 39·25 females.

*Hereditary predisposition.*—The register of the presence or absence of this feature has been very carefully attended to. In 226 cases out of the 509, or in 45·2 per cent., the hereditary predisposition was distinctly traced. Of Dr. Pollock's cases 30·16 per cent. had this feature, being 15 per cent. less than our average, which is very high, and should be borne in mind in reference to the prognosis in these cases.

*First symptoms.*—In the greater number of the cases the symptoms were those of the ordinary tuberculous form of consumption, of which examples have been already given; but in 67 cases, or in 13·4 per cent., the patients had suffered from an attack either of pleurisy or pleuro-pneumonia, from which only partial recovery had taken place, the cough, &c., had continued, and symptoms of consumption had eventually come on. In 44 cases out of the 67 no hereditary predisposition could be traced. In 83 cases, or in 16·6 per cent., the disease originated in an attack of influenza or bronchitis, and 36 of these patients were free from hereditary predisposition. 150 cases of consumption therefore may be described as arising from inflammatory attacks of the lungs—e. g., from pleurisy, pleuro-pneumonia, bronchitis, or influenza; and in 80, or more than half of these, no hereditary taint could be traced.

*Hæmoptysis.*—This symptom was recorded to have been present in various degrees at some period of the patient's history in 278 cases out of the 500, or in other words, in 55·6 per cent of the whole number. Of Dr. Cotton's* 1000 cases of consumption, 53·6 per cent. had hæmoptysis, and of Dr. Pollock's 1200 cases alluded to above, 58·41 per cent. That recorded in the First Medical Report of the Hospital for Consumption was 63 per cent.

*State of the lungs.*—Whatever importance we may attach to general symptoms in cases of pulmonary consumption, the state of the lungs is the true basis of our diagnosis; and the changes in those organs, according as they proceed slowly or rapidly, or tend to destruction or recovery, form the principal elements of an unfavorable or favorable prognosis. In these cases the physical signs at the first visit, and, in almost every instance, in the last also, have been carefully recorded, so that by comparing these records a fair estimate my be made of the amount of change that has taken place from first to last. The classification of the conditions of the lungs—consolidation, softening, and excavation—into first, second, and third stages, is open to objections, because such stages are not always well defined, it being sometimes difficult to distinguish between the end of the second and the beginning of the third stage; and again, various parts of the same lung may be in different stages.

However, it has been found difficult to avoid some such classification for the purposes of statistics, and therefore that of stages has been adopted, with the understanding that the first stage embraces various amounts of consolidation, and that the second and third are sometimes only different degrees of the state of softening and excavation.

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* Elements of Prognosis in Consumption. 1865.

* Consumption, Second Edition.

Of the 500 patients, 356 at the first visit were found to be in the first stage, 76 in the second, and 69 in the third,

Of the 355 in the first stage—
- 144 had both lungs affected.
- 134 had the right lung alone affected.
- 77 had the left lung alone affected.

Of the 76 in the second stage—
- 3 had both lungs in the second stage.
- 14 had the right lung in the second stage, and the left unaffected.
- 9 had the right lung in the second stage, and the left in the first stage.
- 29 had the left lung in the second stage, and the right unaffected.
- 21 had the left lung in the second stage, and the right in the first stage.

Of the 69 in the third stage—
- 3 had both lungs in the third stage.
- 9 had the right in the third stage, and the left unaffected.
- 15 had the right in the third stage, and the left in the first stage.
- 3 had the right in the third stage, and the left in the second stage.
- 22 had the left lung in the third stage, and the right unaffected.
- 12 had the left lung in the third stage, and the right in the first stage.

It would appear then that 71 per cent., or by far the greater proportion of the patients, were in the first stage, and only 29 per cent. in the second and third, the respective percentages being 15·2 for the second, and 13·8 for the third. This fact should be borne in mind, as the early period at which the disease has been detected and submitted to treatment has doubtless greatly influenced the duration of the case.

It is difficult to convey an exact notion of the *amount* of disease by a summary like the above, but a general idea of the results of the first examination can be obtained, and to enter more fully into the subject it would be necessary to enumerate the physical signs of each case, which could hardly be done in a communication of this description.

Let us now see what results subsequent examination of the chest gave, the last visit being generally the date of such examination. Of the 500 patients 116 died, but in the 384 patients who were alive, when last heard of the state of the lungs was—

| | |
|---|---|
| Improved at last report in | 179 |
| Stationary | 53 |
| Worse | 115 |
| Unknown | 37 |
| | 384 |

On dividing them into stages.

| **First stage—** | |
|---|---|
| Improved | 135 |
| Stationary | 37 |
| Worse | 84 |
| Unknown | 29 |
| | 285 |

| Second stage— | |
|---|---|
| Improved | 22 |
| Stationary | 3 |
| Worse | 21 |
| Unknown | 6 |
| | 52 |

| Third stage— | |
|---|---|
| Improved | 22 |
| Stationary | 13 |
| Worse | 10 |
| Unknown | 2 |
| | 47 |

These results are highly satisfactory. Excluding the 37 "unknown," in more than *half* the state of the lungs "improved, in about *one-sixth* it remained "stationary," while in less than *one-third* it became "worse."

The analysis into stages is interesting, as it shows the proportions of different states in each stage. In the first the proportions are much the same as in the whole number, but in the second the number of "stationary" decreases and that of "worse" increases; while in the third the reverse is the case.

The improvement in the physical signs of the patients in the first stage consisted of the dulness diminishing either in extent or degree, or in both; of the breath and voice sounds becoming less tubular, and more vesicular; and, in some few instances, of the signs disappearing altogether, leaving only normal percussion and breath sounds. In those of the second stage the crepitation diminished, and was replaced by tubular breathing; and this again, in some instances, gave way to healthy sounds. The favorable change in the physical signs of the third stage, of which many instances have been given in the preceding papers, was showed by the dulness decreasing, the cavernous sounds and pectoriloquy being less marked and audible over a smaller portion of the lungs, sometimes being replaced by the dry sounds of emphysema, but generally by tubular breathing and bronchophony. These last signs in some instances disappeared, except above and within the scapula, where they generally could be detected after they had vanished from other parts of the chest.

*Duration.*—We will now consider that most important point in these cases of consumption—*the duration of life*. Of the 500, 116 are ascertained to be dead, and 384 to be living at last report. What results are obtained from the 116 deaths? The average duration of life in these patients, considered collectively, was 8 *years exactly* including an average of 8 years 3·9 months for those first seen in the first stage; of 7 years 10·7 months for those first seen in the second stage; and of 7 years 1·5 months for those first seen in the third stage. This total was composed as follows:—

| | | |
|---|---|---|
| 32 | lived from | 1 to 4 years (inclusive.) |
| 53 | " | 5 to 9 " |
| 21 | " | 10 to 14 " |
| 4 | " | 15 to 19 " |
| 6 | " | 20 to 28 " |
| 116 | | |

Of the 10 patients who survived their first attack from 15 to 28 years, one lived 15 years, one 17, one 18, one 19½, two 21, one 22, one 24, and two 28.

It is worthy of notice that no less than 72·4 per cent. lived 5 years and upwards, while 26·7 per cent. lived 10 years and upwards. What results do we get from 384 patients who were alive when last heard of, and who had been under observation for various periods of time, all exceeding one year? The average duration in these 384 patients collectively slightly exceeds 9 years 7½ months, including an average of 10 years 1·5 months for those in the first stage at first visit; 7 years 7·7 months for those in the second stage; and 7 years 11·1 months for those in the third stage. This total result is composed as follows:—

| | | | | | |
|---|---|---|---|---|---|
| 20 | have lived ... | 1 | year, but less than | 2 | years |
| 45 | " ... | 2 | years, " | 3 | " |
| 42 | " ... | 3 | " " | 4 | " |
| 21 | " ... | 4 | " " | 5 | " |
| 100 | " from | 5 | " to | 9 | " |
| 71 | " " | 10 | " to | 14 | " |
| 29 | " " | 15 | " to | 19 | " |
| 56 | " " | 20 | " to | 45 | " |
| 384 | | | | | |

Of the whole number, 256, or *two-thirds*, have lived 5 years and upwards while only *one-third* have lived less than five years. The most numerous class is the period of 5 to 9 years; next that of 10 to 14; next, that of 20 to 45; and the least numerous of all is the period of the shortest duration—viz., that of from 1 to 2 years. The 56 cases of 20 years' standing and upwards constitute more than one-seventh of the whole number, and may be arranged thus:—

| | | | |
|---|---|---|---|
| 13 | have lived | 20 | years |
| 16 | " | 21 | " |
| 10 | " | 22 | " |
| 3 | " | 23 | " |
| 5 | " | 24 | " |
| 2 | " | 25 | " |
| 3 | " | 26 | " |
| 1 | has lived | 27 | " |
| 1 | " | 29 | " |
| 1 | " | 34 | " |
| 1 | " | 45 | " |
| 56 | | | |

It may be asked, what was the state of these 384 patients at the last report? Were they complete invalids, lingering out a miserable existence or was their health sufficiently good to permit of their returning to the duties, if not to the pleasures, of life? Observation on this point leads us to class the patients as follows:—

1st. Those who have apparently quite recovered their general health, and are able to follow their occupations without any recurrence of their former symptoms. These we describe as "well."

2nd. Those who are able to follow their occupations more or less actively; but owing to their being subject to a return of their symptoms, are obliged to use precautions, and to limit their exertions. These we designate "tolerably well."

3rd. Those who are obliged to devote themselves entirely to the care of their health are described as "invalid."

There were 175 well, 93 tolerably well, and 116 in an invalid state,—i.e., about 70 per cent. in the first and second classes, and 30 per cent. in the last. This large preponderance of patients who may be considered to have recovered their health over those who still remain feeble, is very remarkable, and shows what reparative power nature can put forth when the progress of the disease is delayed. The 384 living cases include members of every profession,—Parliament, the army, navy, church, medicine, law, business, &c., and are therefore liable to dangers consequent on each calling: as exposure to great variations of temperature from which military and naval men suffer; or close confinement in hot rooms and occasional pressure of work, the lot of many business men; or, again, the strain on the lungs which public speaking entails on members of Parliament clergymen, barristers, public lecturers, and the like. It may be stated that a large number of the patients had used their voices largely, and have recovered sufficiently to do so again. The greater part of the "well" class could not be distinguished in ordinary life from healthy persons, and many are sufficiently strong to undertake exertion of an arduous kind—whether physical, like long walks and mountain ascents; or mental like close application to study or business. The proportion of each class in the various periods of duration is seen below:—

| Duration. | Well. | Tolerably well. | Invalid. | Total. |
|---|---|---|---|---|
| 1 to 4 years ... | 49 ... | 34 ... | 45 ... | 128 |
| 5 to 9 " ... | 31 ... | 32 ... | 37 ... | 100 |
| 10 to 14 " ... | 35 ... | 14 .. | 22 ... | 71 |
| 15 to 19 " ... | 19 ... | 6 ... | 4 ... | 29 |
| 20 y'rs and upwards | 41 ... | 7 ... | 8 .. | 56 |
| | 175 | 93 | 116 | 384 |

This table shows that with the increase in duration a decrease takes place in the proportion of "invalids." In the *first* two periods the classes do not vary greatly, but in the *last* two the "well" class has a great preponderace; showing how chronicity of the disease favors its arrest.

The information given under the various headings of Hereditary Predisposition, Hæmoptysis, State of Lungs, &c., as well as the cases quoted, will hardly leave a doubt on the reader's mind that these 500 patients presented the characteristics of pulmonary consumption in its varied forms and would formerly have been assigned, as indeed many of them were assigned, a very limited duration of life. Of late years, however, an opinion has been gaining ground that pulmonary consumption, under rational treatment, may be considerably retarded in its naturally brief career of destruction—an opinion which has been confirmed by the experience of Sir James Clark, Dr. C. J. B. Williams, Dr. Hughes Bennett, Dr. Quain, and lately by Dr. J. E. Pollock, whose testimony as to what has been done among the out-patients of the Brompton Hospital is of great value. Among his 3566 cases of all kinds of consumption, acute and chronic, only 129 had died at the end of two years and a half. Unfortunately Dr. Pollock gives no further report of these patients, who were probably, as is often the case in hospital practice lost sight of; but their state at the time of leaving justified the expectation of life for a considerable term. Our own statistics speak for themselves and need but little comment. They deserve the notice of insurance offices, and of others to whom an accurate knowledge of the duration of consumption among the upper classes is important. The average among the patients who died was eight years; among the survivors, nine years seven and a half months, with a fair expectation of much longer life in two-thirds. These results are, I believe, the most favorable ever published, and, it is to be presumed, will go far to establish a more hopeful view of pulmonary consumption. At the same time must be borne in mind the advantages which the patients enjoyed in the early detection of the disease; in the various healing measures medicinal and hygienic, at their disposal; and in the steady and untiring perseverance with which the treatment was carried on, even through a long series of years.

*(To be concluded.)*

◆

# ON UTERINE DISPLACEMENTS.

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There are few disorders connected with the female generative organs which have received more attention or been the subject of more discussion than that which I propose to consider in the following observations. Perhaps it might be thought that I have chosen a subject which has already been treated almost *usque ad nauseam*. But in truth, if it be so, there is little credit derivable from the fact that even now the most diverse opinions are held by equally competent authorities on some of the cardinal points in the pathology of these affections. For while some attribute the suffering which is so constant in these cases to the uterine displacement itself, and regard this also as the cause of the various local disorders incident to it, others, on the contrary, believe that the malposition is of comparatively little importance; nay more, that in many the supposed displacement is the normal condition, and that the only question for therapeutical consideration is the state of the uterus apart from such displacement. When we consider how extremely common these affections are (far more so, I believe, than is generally imagined); how great the distress which is often associated with them; how serious the consequences in regard to married life; and how important it is, in the management of them, that we should have correct views of their pathology, as well as a clear insight into their diagnosis and treatment,—it is surely not necessary to offer an apology for these remarks. Speaking from my own experience, I should say that there are few diseases in regard to which greater or more frequent mistakes are made than in those under consideration. The pain and (what is called) leucorrhœa which so constantly exist in these cases are perpetually being ascribed to "ulcer of the womb," and treated with caustics and astringent lotions when no such ulcer is discoverable. This is the more remarkable because nothing can be easier than the diagnosis of displacement, however much opinions may differ as to the pathology and treatment. It may be that the above-mentioned practice is founded on the belief that the displacement is of no importance, and that the cure of an ulcer, when it exists, or the use of some alum water to check a vaginal discharge, is all we are called upon to do in such cases. If that be so, then I think experience teaches the necessity of reviewing our opinions in this respect, and especially with regard to the question whether or not the malposition of the uterus be a matter requiring attention and treatment. It is with the view, principally, of discussing this point that the following remarks are offered.

But, prior to any consideration of the causes and consequences of uterine displacement, it seems natural to inquire what is the exact normal position of that viscus, and what the direction of its cavity. Such an inquiry appears to be all the more necessary from the fact that no little difference of opinion exists regarding it. It is stated by many observers that an anteflexed, antecurved, or anteverted condition is the normal state of the virgin uterus; and it is thought that this is probably due to the continuance of developmental processes in the organ itself. Dr. Arthur Farre, for instance, in his admirable monograph on the Uterus and its Appendages in the "Cyclopædia of Anatomy and Physiology," says, speaking of the position of the uterus in early life, "This consists in a curvature or inclination forwards of the upper part of the uterine body. It is constantly more or less seen in infancy and childhood, and is usually partly retained in the virgin adult, but becomes lost after one or two pregnancies. In an excessive degree it constitutes the condition hereafter described as anteflexion of the uterus." (p. 643.) And again: "In the fœtus, and during early infancy, anteflexion exists as a normal state; and it appears to me that this bias towards a forward inflexion of the uterus at the early periods of life is given by that remarkable bending forwards of the lower extremity of the spine which is observable in the early embryo." (p. 682.)

From these remarks it is evident that Dr. Farre regards anteflexion as the normal condition of the uterus in early life; and he attributes this to causes operating upon the uterus mechanically, and, as it were, *ab extrâ*, not to any vital action, if I may so say, of the organ itself.

I have not been able to find among English authorities any statistics of dissections of fœtuses in reference to this point; on the contrary, our anatomists and physiologists for the most part make no allusion to the question. M. Lorain, however, in 25 autopsies, found the following results:—In 6 there was anteflexion; in 4 antecurvature; in 11 lateroflexion; in 2 retroflexion; and in 2 the organ was straight. With such a diversity of results, it seems to me that we can scarcely at present accept it as proven that anteflexion is the normal and usual condition of the uterus in fœtal life. At any rate the facts just cited seem to show that if that be the normal position, then in the fœtus the uterus is more often in an abnormal position than otherwise.

Pursuing the inquiry a little further into childhood, I find that of 97 autopsies performed by MM. Goupil and Soudry, the uterus was anteflexed in 55, anteverted in 11, lateroverted in 7, retroverted in 17, and retroflexed in 7. Here, again, the exceptions to the supposed rule are nearly one-third of the whole number.

In two examinations made by myself of fœtuses which had arrived respectively at the seventh and eighth month of intra-uterine life, I could not discover anything like an anteflexed condition of the uterus after their removal from the pelvis. Prior to that they appeared to occupy a direction parallel with the axis of the pelvic inlet. In three children, aged respectively three and a half, five, and nine years, that I have examined post-mortem, and in whom a digital examination was possible, (it is not, of course, possible in the fœtus,) the uterus in each case occupied precisely the same position, and certainly was not in any way flexed. I should add, however, that I have never yet seen a uterus in a state of flexion after death, except in cases complicated with tumour, or where the flexion was maintained by adhesions. I can only therefore speak to the post-mortem appearances in the cases referred to, and can neither affirm nor deny the existence of flexion during life. It will, of course, be remembered, and this remark applies especially to the ages before puberty, that the uterus possesses very little rigidity after death, and is easily influenced by the surrounding and superimposed viscera. So that it is possible, perhaps, that a moderate amount of flexion existing during life may be undiscoverable after death; while, on the other hand, the flaccidity of the virgin uterus offers after death but a very feeble resistance to the artificial production of these displacements.

On the whole, therefore, I confess that I am not disposed to attach much importance to the position of this viscus in the fœtus or child as revealed by post-mortem examination, unless it should appear from a considerable number of facts that a decided flexion is of very common occurrence, and is so marked that the cavity forms a somewhat acute angle. As to any mere version of the whole organ while its canal remains straight, I cannot help suspecting that this may occur simply as a post-mortem change; and considering that in after-life, as I shall prove, neither anteflexion nor anteversion is the most common displacement, I must be permitted to doubt their frequency in early life, and to question their existence as the normal condition.

Proceeding a step farther—to adult life in nulliparous women,—I find a similar diversity of opinion existing. Dr. Farre says: "The uterus lies with its fundus directed obliquely upwards and for wards; while the cervix or neck looks downwards, and very slightly backwards, towards the orifice, of the rectum." (p. 624.) And again: "The lower portion or cervix of the uterus being curved upon the body in the manner hereafter described, the direction of the canal will be downwards and will be represented by a line drawn nearly perpendicularly to the horizon." (p. 624.) Thus, according to Dr. Farre, the entire cavity of the uterus forms a marked antecurvature.

Another recent writer, Dr. Graily Hewitt, in his work on the Diseases of Women (p. 201), says: "Normally, the canal of the uterus passes at first upwards in the direction of the pelvic axis, but higher up there is a slight inclination forwards." It is not quite clear, from this passage, what the writer means by "the pelvic axis," seeing that the pelvis has three axes—those of brim, cavity and outlet, but if the direction be, as he says, at first upwards and then forwards, it is evident, that, in his opinion, the uterus is either antecurved or anteflexed.

Again Dr. Henry Bennet, in his work on Inflammation of the Uterus (4th edit., p. 12), says: "The virgin uterus is usually not perfectly straight, but presents a slight curvature, the cavity of which is anterior and towards the bladder, and the convexity posterior towards the rectum." He adds that this curvature, "when it exists"—implying thereby that it is sometimes absent,—tends "to bring the neck into the direction of the axis of the lower pelvic outlet." It appears however, from p. 442 of Dr. Bennet's work, that he discovered this antecurvature or anteflexion "accidentally," by observing that "small wax or gum-elastic bougies," if left in the normal uterus for "a minute or two," are found on withdrawal to "invariably present a slight anterior curve;" and he adds that "every precaution was taken to insure correctness, *the bougies being introduced by means of the speculum.*" I have italicised this last sentence because I cannot help thinking that this mode of introducing the bougies vitiates the whole experiment. In nulliparous women, and especially in virgins, it is exceedingly difficult, if not impossible, except by greatly distorting the parts, to bring the os fairly within reach of the speculum; and, at any rate, assuming it to be true, as I believe it is, that the fundus uteri is normally in the direction of the pelvic inlet, while the speculum is passed in the direction of the outlet, it follows that the attempt to pass a flexible bougie by this means into the uterine cavity must cause a bending of the instrument, even though there be ordinarily no curvature or flexion of the uterine cavity. Hence the value of Dr. Bennet's observation is considerably diminished.

Referring to continental authorities on this point, I find that of 210 nulliparous women, examined during life by Depaul, Gosselin, and Goupil, there was anteflexion in 60, antecurvature in 35, anteversion in 21, lateroversion in 7, retroversion in 6, retroflexion in 12, and in 69 the uterus was straight. If, however, we examine these figures as given by each of the three authorities we find a very remarkable difference in the relative frequency of these several varieties of displacement. This will be best seen in the subjoined table:—

| — | Anteflexion. | Antecurvature. | Anteversion. | Lateroversion. | Retroversion. | Retroflexion. | Straight. | Total. |
|---|---|---|---|---|---|---|---|---|
| Depaul..... | 3 | ... | 7 | ... | 4 | 4 | 32 | 50 |
| Gosselin... | 16 | 11 | ... | ... | ... | ... | 18 | 45 |
| Goupil.. ... | 41 | 24 | 14 | 7 | 2 | 8 | 19 | 115 |

I imagine that the term "straight" in the foregoing table implies that the uterus was neither ante- retro- nor latero-flexed, verted or curved, but was straight throughout its length, and with its long diameter in the axis of the pelvic brim. Between such a position and that which goes by the name of anteversion, it might be thought that there is no essential difference, and possibly many of the so-called anteversions are not so in reality. At the same time, it cannot be doubted that anteversion does sometimes exist to an extent which cannot be regarded as normal. In like manner, even if it were conceded, which I am not disposed to do, that a limited amount of antecurvative is not in itself an abnormal condition, still it is certain that the bend may be so sharp as to constitute a decided angular flexion, in which case it is impossible to regard it as normal; and, whatever may be the cause, such a displacement is very commonly associated with unmistakable distress and suffering, hindering seriously, if it does not altogether prevent, the due performance of some most important uterine functions.

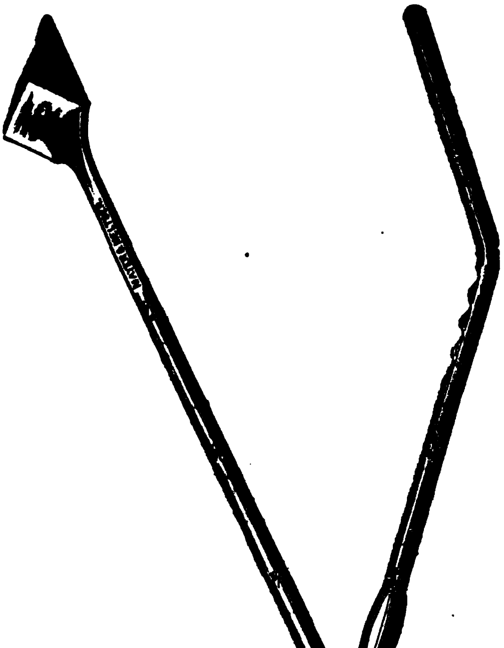
Granting, then, that both anteversion and anteflexion are to be regarded as abnormal displacements when they have reached a certain point, it appears to me necessary to fix upon some standard by which to test what is normal and what otherwise. Nothing can be more certain than this, that the amount of displacement is by itself no measure of the severity of the patient's symptoms. Very slight displacement may, in one person, be accompanied by double or treble the amount of distress borne by another. Whether or not this displacement, be it much or little, is the cause or consequence of the local symptoms, will be considered hereafter; all that I am anxious to determine now is, what is and what is not, to be regarded as displacement; in other words, what is the normal position of the virgin or nulliparous uterus?

In endeavouring to answer this question, I rely mainly on what my own experience has taught me, and I submit it as evidence to be carefully tested by others, being fully persuaded that its settlement is of no mean importance. With the opinions which are quoted above I cannot at all concur, for my own observations, made with all due care, lead to the conclusion that, in nulliparous women, there is normally no curvature whatever in the general direction of the uterine canal; that this, on the contrary, is straight throughout its course, and that its direction is continuous with, and parallel to, that of the cervix. Further, my belief is that the normal axis of the uterine cavity is identical with that of the pelvic brim or inlet, being represented by a line drawn from the umbilicus downwards and backwards to the coccyx, and forming with the horizon an angle of about 30°. Whenever it is found that the direction, of the uterine cavity differs permanently from this, there, in my opinion, is evidence of something abnormal.

In support of the view here taken, I may perhaps be allowed to cite the authority of Dr. Tyler Smith and Dr. Savage, neither of whom is likely to state what he is unable to verify. The former says, in his "Manual of Obstetrics," p. 31,—"The uterus is placed in the middle of the upper part of the pelvis, its direction being the same as that of the pelvic inlet." Dr. Savage, in his "Illustrations of the Surgery of the Female Pelvic Organs," represents in plate vi., fig. 1, a view of the female pelvic organs in their natural relations regarded from above, from which it is seen very clearly that the fundus uteri occupies a position almost exactly midway between the pubes and the promontory of the sacrum. In the same plate, fig. 2, is a view of the antero-posterior relations of the pelvic viscera, seen by a perpendicular section through the pelvis in the median line; here, again, it is plainly apparent that the position of the uterus is as I have represented it. Indeed, Dr. Savage says, "the situation of the uterus depends on that of the pelvic roof; where this is intact, the organ occupies the middle of the pelvis a little behind its centre, its long axis corresponding with that of the pelvic inlet." He tells us, further, that "injections through any of the larger pelvic veins cause the uterus to stand erect"—that is, I imagine, in regard to the axis of the pelvic inlet, or rather to the plane of the pelvic brim, in which position it is retained normally by its proper ligaments.

Between the nulliparous uterus and that which has been impregnated there is, according to my observation, this difference in their normal relations—viz., that while the cavity of the organ is still straight throughout, its direction has become slighly more vertical—that is, more in the direction of the sacral promontory; and this tendency increases somewhat after successive pregnancies. Dr. Graily Hewitt has observed the same change when he says "the fundus of the uterus inclines more backwards in women who have had children than in virgins."

There is one question to which I may allude, as it is of some practical importance in relation to the subject I have been considering—viz., what is the best shape for the uterine sound? I believe it to be that which is represented in the subjoined illustration. This instrument is made in accordance with the views I have expressed in this paper as to the normal direction of the uterine cavity. It will be observed that its uterine portion is straight—not curved,—and is set at an angle with the handle or stem which facilitates its introduction in the direction of the pelvic brim. For the sake of portability the instrument is jointed in its middle; and at the handle-end there is set a prism, which is intended for use as a metroscope through the speculum. When once the operator is accustomed to the use of this sound he will have little difficulty in making out whether the direction of the uterine cavity is such as I have represented it, or whether it is any way different from that—in other words, displaced.



It is a further question whether, if it be, it is productive of any symptoms, or whether it is merely associated with those symptoms—they and it being the result of some other local disorder.

Referring to the cases of uterine displacement of all kinds which have come under my care in hospital and private practice during the last three years, to the end of 1867, and of which I have careful notes, I find that the total number observed was 84. Of these, 14 occurred in single women, 70 in married. Of the latter, 15 were sterile, and 55 had been pregnant; of these last, 27 had aborted. The total number of abortions was 63, or an average of 2⅓ to each person who aborted. The total number of children born was 171, or an average of 3—9 to each mother, and the total number of pregnancies was 234, or an average of 4¼ to each of the fertile women. The frequency of the several varieties of displacement was as follows:—Retroflexion occurred 34 times; in 8 the patient was single, in 26 married. Retroversion was met with in 18 cases; 3 were single, 15 married. Anteflexion occurred 20 times; 1 only of these was single, the rest were married. Anteversion was noticed in 12 cases; 2 of these were single, and 10 married. All these points will be best seen by reference to the following table, which shows also the relative frequency of sterility and fertility, of abortion, of children at term, and of pregnancy in the several varieties of uterine displacement.

| — | Single. | Married. | Women sterile. | Women fertile. | Number of women who aborted. | Total number of abortions. | Average number of abortions. | Total number of children at term. | Average number of children. | Total number of pregnancies. | Average number of pregnancies. | Total number of cases. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Retroflexion | 8 | 26 | 5 | 21 | 13 | 27 | 2 1-13 | 72 | 3½ | 99 | 4¾ | 34 |
| Retroversion | 3 | 15 | 2 | 13 | 6 | 23 | 3 5-6 | 32 | 2½ | 55 | 4¼ | 18 |
| Anteflexion | 1 | 19 | 6 | 13 | 3 | 6 | 2 | 49 | 3¾ | 55 | 4¼ | 20 |
| Anteversion | 2 | 10 | 2 | 8 | 5 | 7 | 1 2-5 | 18 | 2¼ | 25 | 3⅛ | 12 |
|  | 14 | 70 | 15 | 55 | 27 | 63 | 2⅓ | 171 | 3⅛ | 234 | 4¼ | 84 |

There is one other point of interest which may be gathered from the following table—viz., as to the age at which uterine displacement is most commonly observed. I have here grouped together both the married and single, with the following results:—

| — | From 20 to 25 years. | From 25 to 30 years. | From 30 to 35 years. | From 35 to 40 years. | From 40 to 45 years. | From 45 to 50 years. | Total. |
|---|---|---|---|---|---|---|---|
| Retroflexion | 6 | 11 | 9 | 5 | 3 | — | 34 |
| Retroversion | 4 | 2 | 3 | 5 | 2 | 2 | 18 |
| Anteflexion | 4 | 7 | 3 | 4 | 1 | 1 | 20 |
| Anteversion | 2 | 2 | 5 | 2 | — | 1 | 12 |
|  | 16 | 22 | 20 | 16 | 6 | 4 | 84 |

I do not of course attach equal importance to the several statistical results observed in the preceding tables; some of these are much more substantial as bases of arguments than others. Doubtless there are some persons who, discrediting all statistics as applied to vital phenomena, or at any rate those having reference to questions of pathology, will be inclined to attribute but little value to any of these results. Still there are some facts, it appears to me, in the tables above, which can scarcely be disputed, unless other facts can be found to contradict them. Meanwhile, I submit that I am entitled to believe as clinically demonstrated—

First, the uterine displacements are much more common in married than in single women.

Secondly, that sterility is very frequently associated with, if it be not caused by, these displacements. In the table it is seen that the proportion of sterile to fertile women is as 1 to 3⅔, which is certainly a much larger proportion than is ordinarily met with among healthy married women. It will further be seen that the proportion varies in the different kinds of displacement thus: in retroflexion it is as 1 to 4·2; in retroversion as 1 to 6·5; in anteflexion as 1 to 2·2; and in anteversion as 1 to 4. Now, it may be thought that the number of facts from which these results are obtained is insufficient for the purpose of arriving at any conclusions. It may be so; but certainly it is remarkable that that condition of the uterus which is thought to be the most nearly normal—namely, anteflexion—is just the one which is more often associated with sterility than any of the other positions. This, it seems to me, is an additional reason for questioning the opinion commonly entertained on this point.

Thirdly, it appears that abortions are very common in woman who have any uterine displacement, 27 out of 55 who had been pregnant. It may perhaps help to a solution of the question whether abortion is a cause or consequence of displacement of the uterus, if we consider the following facts:—1. That at least one-sixth of all the varieties of malposition of the uterus occur in single women. 2. That of the 27 married women who had aborted, in 7 only did it appear from the history to have had any connexion with the displacement. 3. That of 55 pregnant women, 27, or just one-half, aborted 63 times. 4. That of the total number of cases—namely, 84,—there are 57 who never aborted, as against 27 who did; the inference being that if abortion did not operate to produce displacement in the larger number, it did not in the smaller.

Fourthly, we see that the average number of pregnancies, including the abortions, is 4¼ for each fertile woman, which is certainly not a low average, and seems suggestive of the idea that frequent gestation may be to some extent a cause of these disorders of the uterus.

Fifthly, we learn from the second table that a large majority of the cases occur between the ages of twenty-five and thirty-five years—that is, at the time when the uterus is most heavily taxed in the performance of the procreative function. We learn, further, that uterine displacement is rare after the cessation of the catamenial periods, only 10 of the 84 cases occurring after the age of forty, and only four after that of forty-five. All this, again, strengthens the idea suggested in the preceding paragraph.

Now in all that I have stated hitherto I have assumed that displacement of the uterus is *per se* a malady which is provocative of all the symptoms usually attributed to it, and that these symptoms vary according to the degree and kind of malposition. This assumption does not affect the validity of what I have advanced, but I feel bound to state my belief that mere displacement of the uterus—by which I mean mere deviation from what I hold to be its normal position, unaccompanied by any other change in its structure—does not, as a general rule, give rise to any morbid phenomena. I must, however, add that I believe it is extremely rare to meet with a case of uterine displacement which is not at the same time associated with other organic changes, and to these, in my opinion far more than to any malposition, the symptoms complained of are attributable.

I find, on examining the notes of my cases that in a very large proportion of them the uterus was a good deal enlarged; that this enlargement was more in its thickness than in its length, though generally in both; and that it was more frequent and more marked in cases where the uterus was misplaced backwards than when forwards. It is obvious, when we consider the normal position and direction of the uterus, that displacement backwards must be the more serious of the two, more difficult to produce, and more marked in its consequences; so that if the symptoms which we usually associate with displacement be due rather to the organic changes in the uterus itself than to the malposition, they will be more severe in the case of retro- than in that of ante-flexion or version. As a matter of fact I have found that when there is retroversion, still more when there is retroflexion there is more pain, more tenderness, and more general distress than in cases of ante-flexion or version. The uterus, too, will always be found to be larger in the former than in the latter; and yet, notwithstanding all this, I believe it will be found as a rule that the treatment of the former is more satisfactory in its results than the latter. I am far from saying that there is enlargement of the uterus in all cases of malposition. I know that this is not so; for I have seen instances of extreme displacement not only without any enlargement, but with the organ rather undersized than otherwise. In the great majority of these, however, there are few or no symptoms resulting; none at least requiring any special treatment. With some, on the other hand, there is a good deal of distress; but I have generally found that when this existed it was due to some intercurrent or antecedent inflammation outside the uterus, as it were; for instance, some local peritonitis, giving rise, it may be, to bands of adhesion, and fixing the uterus perhaps in its morbid position, yet not occasioning any uterine enlargement, at all events not for some time.

One of the most interesting points of inquiry connected with this subject, and upon which the whole question of therapeutics depends, is the relation which exists between the displacement, and the organic lesions connected therewith. Are the latter the cause or the consequences of the former? And are the symptoms associated with these cases due to the one or the other of these phenomena. The most diverse opinions are entertained on these questions, and of course, opposite plans of treatment have been founded thereon. The one plan aims at an immediate rectification of the displacement, in the belief that, this being secured, all else will do well; while the other seeks to correct what is regarded as the cause of all the evils, prior to any attempt to remedy the malposition. In endeavoring to determine which of these two views is the more generally correct the following facts should be borne in mind:—

1. That displacement, amounting even to acute retroflexion, sometimes exists without giving rise to any special symptoms. No doubt such cases are rare exceptions to the more general rule. Nevertheless I have met with them, and possibly others may have done the same.

2. The same, or very nearly the same, symptoms as occur in the majority of cases of uterine displacement with the exception of those which are referable to the rectum or bladder, and are due to pressure of the displaced fundus, are not unfrequently met with in cases where, on examination, no such displacement exists.

3. That in most, if not all, of these cases the uterus is enlarged, heavy, congested, and painful to the touch. Apart from any explanation, these are the facts; but I believe I may safely assert that in such cases the symptoms are attributable solely to these conditions.

4. That in cases of undoubted displacement of the uterus, associated with symptoms which I need not particularise, as they are too well understood, one or all of the conditions mentioned above will invariably be found to exist.

5. That in very many of the cases just referred to, the mere rectification of the malplaced uterus is unattended by any marked alleviation of the symptoms.

Bearing all these facts in mind, I submit that the only interpretation which is fairly deducible from them is that the displacement itself, though it ought to be regarded as an evil, as complicating other affections, and as requiring some attention, probably some direct treatment, is nevertheless not to be considered as the evil *par excellence* in these cases; that it ought not to claim the first consideration in our method of treatment; but that, on the contrary, it should be regarded as secondary in importance, as it is in all probability, and as the above-mentioned facts seem to suggest, secondary in order of occurrence. I am satisfied that in the history of the great majority of cases of uterine displacement, there will be found, if carefully sought after, some evidence of antecedent uterine disorder, though very possibly the more pressing symptoms, those which perhaps in some cases have determined the patient to seek medical advice, are mainly due to the displacement itself. It is in the early history of these cases that we must principally look for the causes of them, and we must be careful to connect this with the present if we would be successful in treatment.

And here, in conclusion, I would add a few words on this latter part of the subject. It is probable that, in the treatment of the diseases peculiar to women, and in the treatment of other diseases, and in other walks of life, we are, unconsciously, it may be, a good deal influenced by fashion. Any one who reflects on the history of therapeutics in our day, must admit this, that plans of treatment and particular remedies are continually cropping up, mushroom-like, to live their day and die away. We obstetricians are neither more nor less addicted to this than our brethern in medicine and surgery. Perhaps it may appear to some that the present phase of therapeutics, as regards the diseases of women is rather too strongly marked with a surgical tendency. I own for myself I am somewhat disposed to admit it; and the explanation I think is to befound in an over-anxiety for progress. We are far too anxious to secure speedy results, too impatient of the slower actions of drugs, and hence too ready to resort to measures by which at any rate we may *do* something, though the result is too often but another illustration of the proverb, "The more haste the less speed."

To a certain extent these remarks are applicable to the subject under consideration. Of course, if it be true that the local conditions which so commonly accompany displacements of the uterus are the result of those displacements, then obviously the treatment cannot be too soon directed to their rectification. But, on the other hand, if the local conditions are antecedent to the displacement, and are indeed the cause of it, then it is equally clear that we ought, first of all, to treat those conditions before attempting to remedy that which, if it be a result of them, is sure to recur unless they are removed. From what I have stated before on this point, it will be inferred that my opinion is in favor of the latter course. Not that I am opposed to the surgical or rather mechanical methods of healing these displacements, for I constantly resort to them myself, believing as I do that, however perfectly we may remove the enlargement, the pain, the congestion of the uterus, unless also we rectify the malposition, we cannot claim a successful result. Unfortunately, on this point we are sometimes compelled to own a defeat, for, in those cases where adhesions have formed between the peritoneal surface of the fundus and the parts against which it is displaced, we cannot hope and ought not to attempt to rectify matters, or acute and even fatal results may follow.

The remedies which have proved most successful in my hands, and to which, therefore, I attach the greatest importance, are: leeches to the uterus; the vaginal douche; sedative and mildly-astringent vaginal injections; sedative vaginal pessaries, or, which I prefer as being cleaner and more pleasant in use, pledgets of cotton-wool, as first suggested by Dr. Greenhalgh, containing definite proportions of some sedative—morphine and atropine are those I generally use; local galvanism to the uterus, which is very efficient in cases of chronic subacute enlargement; and, among drugs, the iodide and bromide of potassium, the iodide of iron, strychnine, ergot, cinnamon, and occassionally in very chronic cases, where there is a flabby atonic condition, some of the astringent preparations of iron, of which the peracetate is, I think, the best. These are the remedies which I most frequently recommend; and when by these or other means I have induced a healthier condition of parts, then, and not till then, I resort to mechanical means for the reposition of the uterus in its normal direction.

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# THE CASE OF DR. KENNION.

By T. Clifford Allbutt, M.A., M.B.;

Thos. M. Beaumont, L.R.C.P. Ed., F.R.C.S.E;

and

F. Bainbridge, M.R.C.S.E.

We believe that the following particulars of the illness and sudden death of the late Dr. Kennior, of Harrogate, will not be without interest to the profession.

With the exception of two severe attacks of gout in the toe, and again of wandering gouty pains for a few weeks before his last illness, Dr. Kennion was a vigorous and healthy man, and laboriously engaged in practice. On the 19th of June last, when in attendance upon a patient at the Prospect Hotel, he was seized by a sudden and intense pain in the region of the gall-duct, "as though," he said, "someone had thrust a red-hot poker through the body, turned it round, and as quickly withdrawn it." This continued, though gradually diminishing, for five hours; and after the hypodermic injection of morphia he passed a tolerable night.* Dr. Kennion continued to go about the next day, yet there remained, or rather recurred, a pain in the right hypochondrium, with uneasiness. On Saturday, June 20th, he became really ill; he was feverish and nauseated, and he complained of a good deal of pain in the right hypochondrium. He was now compelled to keep his bed, and was attended by Mr. F. Bainbridge, and afterwards (on the Monday) by Dr. Beaumont, of Knaresborough. On Sunday morning, as the symptoms were not relieved, Dr. Clifford Allbutt, of Leeds, was telegraphed for. A careful examination was then made, and a small patch of pleuro-pneumonia—fine sounds, a circumscribed rub, and dulness—was found quite at the base of the right lung. The skin and conjunctivæ were slightly jaundiced, the tongue coated, the stomach uneasy, the pulse 110, and the temperature 100°. He had himself taken a full dose of calomel two days before; so the bowels were kept quiet, and morphia injected at intervals. In a couple of days the pneumonia was nearly gone; but there seemed still to be inflammation of the peritoneal coat of the liver, with tenderness, slight jaundice, &c. Symptoms, however, of worse import than this had gained ground. On Monday the sickness had become incessant, and the abdomen was slightly tympanitic. There had been no movement of the bowels. It was resolved to give a large stimulating injection; and during that night, and Tuesday also, Dr. Beaumont, who watched with devoted care over his friend's sick bed both day and night, repeated it several times. On Tuesday about two pints of fetid, pultaceous, fæcal matter came away, and great relief followed. The pulse, which in the morning was 120 and fluttering, came down to 96, and grew firmer. On Wednesday, at Dr. Allbutt's visit, the patient appeared to be much improved, and a hopeful opinion was given. Towards the end of the day, however, and on Thursday, the symptoms returned. The pulse rose and became compressible, the body became again distended and painful, the vomiting most distressing, and a hiccough, which troubled him more or less from beginning to end, grew worse. At this time dulness and pain on deep pressure were noted over the ileo-cæcal region. The temperature, which had fallen with the cessation of the pleuro-pneumonia, did not rise again, but remained throughout at about 98°. His state was now so alarming that it was determined to seek the help of Sir William Jenner, who with kind promptitude arranged to come down at once. He saw Dr. Kennion on the evening of Thursday, June 25th, and again on the Friday morning, with Dr. Allbutt, Dr. Beaumont, and Mr. Bainbridge. It was but too clear that the bowel was paralysed; but the cause was obscure. There was nothing to point distinctly to intussusception; the local signs seeming to indicate mischief in the ileo-cæcal region—perhaps ulceration of the appendix. On the other hand, the original pain had been higher up, and near the liver; but this might have been pleuritic in origin. Looking at the symptoms as they stood, Sir William Jenner supported Dr. Kennion's advisers in a somewhat hopeful prognosis. The abdominal distension was great, but not excessive; the vomiting had receded a very little, and was never really stercoraceous. Some sleep was obtainable, the pulse was of fair strength and never very rapid, and there was no marked pinching of the features, or symptoms of serious exhaustion. It was determined to carry on the method already pursued: rest to the bowels; injections of morphia; and administration, when possible, of some quantities of nutriment, however small. In accordance with these hopes, a decided amendment set in on Friday and Saturday. The vomiting gave way, and some food was well taken: the pulse recovered; the body softened; the dulness and pain disappeared from the cæcal region; wind was passed, also a few "scybala;" and the jaundiced tint faded. The improvement continued till Monday, when, after ten days of great anxiety, Dr. Kennion, to the joy of his family, seemed to be out of danger. On Monday, after a very comfortable day, he expressed in the evening a desire to pass a motion. As the impulse of the heart was feeble, it had been agreed that he should not rise to the commode; but he passed upon a folded sheet a well-formed fæcal motion, together with a large quantity of a yellowish-brown bilious fluid. He expressed much relief, and congratulated himself upon once more passing a satisfactory motion. It is hard to describe, then, the shock to Dr. Beaumont wher, about twenty minutes after this, he happened to look at his patient and saw him falling into collapse. The nose became cold, the features pinched, and the pulse sank. There was no pain. Dr. Beaumont of course did all that his skill and care could suggest; Mr. Bainbridge was summoned; and a message was despatched to Leeds for Dr. Allbutt. More than three hours elapsed before he could arrive, and it was then but too clear that all would soon be over. Hot applications, hot stimulant drinks, &c., had all been in vain; and although on Dr. Allbutt's arrival brandy was injected into the rectum and mustard poultices applied over the heart, yet no rally could be obtained. The extremities were deadly cold; and the pinched features, the gasping breath, and the semi-delirious tossing, only too surely pointed to the certain coming of death. In five or six hours from the first appearance of collapse the end was at hand.

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* A few hours after the onset of pain, Mr. Bainbridge administered a stimulating emetic, which brought away a very large quantity of bile.

Few men have been more regretted than Dr. Kennion. His gentleness, his patience, and his forethought for others, during his painful illness, had won the intense sympathy of those about him; and the unexpected shock of his death was most painfully felt beyond the circle of his own family. The news of it on the following day seemed to cast a gloom over the whole neighborhood, where his courteous manners, his frank and genial character, and his great personal usefulness had long been known and will long be remembered. His age was about fifty-five

The autopsy was made by Mr. Houseman, in the presence of Dr. Allbutt, Dr. Beaumont, Mr. Bainbridge, and Mr. Scaife. The abdomen only was opened. On laying back the walls the surface of the bowel was seen to be a good deal injected, and the right half of the omentum was so much injected as to seem as if stained with blood. There were no signs of peritonitis, however, beyond those to be described. After tying the rectum the colon was drawn out cautiously and examined. It was quite healthy until that part of the transverse colon was reached which lies below the liver. This portion was so closely matted down by old and firm adhesions that no slight force could detach it; it was bound down to the posterior and right walls and to the under parts of the liver and gall-bladder by adhesions and bands that must have been a year or two, at least, in forming. There were a few new patches of adhesion, easily broken down, none of much extent, and their site of no importance. The parts when laid bare as far as possible, without much tearing, showed the following state of things:—Between the gall-bladder and the colon were several channels bounded by the old bands of adventitious tissue, and these channels communicated so as to form an anfractuous cavity. These channels were filled with a strongly bilious fluid, which appeared also to consist of serum and an unhealthy mucoid or blennorrhagic secretion. The cavity communicated by three openings with—1, the under surface of the gall-bladder; 2, the colon; 3, the peritoneal cavity. In the gall-bladder and in the peritoneum were a few drachms of the same bilious fluid, which also corresponded again with that passed in the last motion. The liver was healthy, with the exception of the adhesions and marks of recent inflammation on the under and posterior surfaces. The neighboring diaphragm was injected, and showed traces of serous inflammation. The gall-ducts and all other abdominal organs were healthy, but the colon was much distended in the ascending portion and in the cæcum. *No gall-stones were found.* The inner edges of the opening into the gall-bladder were slightly thickened, and resembled a gastric ulcer. It would seem, then, that a slow ulcerative process had been going on in the gall-bladder for some time, probably for a year or two at least, and had slowly set up the conservative adhesions about the colon. Then at the time of the acute pain on the 19th of June there was perforation of the gall-bladder, and extravasation of its contents into the meshes of the adventitious cellular tissue. That when they caused irritation, extending upwards to the diaphragm and to the base of the lung, giving rise to the pleuro-pneumonia, the hiccough, and more or less to the vomiting. That the irritation also extended upon the neighboring colon, paralysed that part, and allowed accumulation in the cæcum. That the cæcum was subsequently partially emptied, with much relief; but that a few days afterwards (on the Monday) perforation into the gut took place, with passage of bilious fluid, slight consequent purgation, and passage of a natural and full fæcal motion. That very shortly after this a second perforation took place into the peritoneum, with more extravasation and immediate collapse. It is probable that the adhesions had not caused a strangulation of the gut, as they were nearly all old, and there was no history of any previous arrest of the bowels. The bowels had always been remarkably regular. Moreover, the symptoms throughout rather resembled a paralysis than an unyielding obstruction of the colon.

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# SYPHILITIC ALBUMINURIA TREATED BY THE CALOMEL VAPOR BATH.

## WITH SOME GENERAL OBSERVATIONS ON THE USE OF THE BATH.*

By Henry Lee,

Surgeon to St. George's Hospital.

During the months of March, April, and May, 1866, I attended, with Dr. Cumberbatch, a gentleman whose case had been considered one of a most serious character, on account of the amount of albumen in the urine. This albumen was a constant symptom, and when the urine was tested with heat or nitric acid the opaque deposit extended half way up the tube. The skin was pale and dry.

Dr. Cumberbatch has been good enough to furnish me with the following notes of the case:—

——, aged thirty-eight, tall, of steady temperate habits, applied for advice in November, 1864. He then suffered from frequent desire to pass his water, which was intensely albuminous. There was great cachexia, anæmia, and debility. He was ordered tonics, and to winter abroad. In February, 1866, he complained of pains in some of his bones. A large soft node formed on the upper part of the forearm, and one of the ribs became carious; a considerable discharge took place from both these situations. There was great prostration, nausea, and loss of flesh.

I met Dr. Cumberbatch in consultation in March, 1866. The patient had then sinuses in the forearm and over the ribs, leading down in both situations to exposed bone. As there was a syphilitic history, although dating from a very remote period, it was thought that the caries had its origin in specific disease; and that the affection of the kidneys might possibly depend upon the same cause. Under this impression, the patient was directed to take a calomel bath every night before going to bed. This he did for eight or nine weeks with great regularity. He took also, at different times, a considerable quantity of sarsaparilla, sulphite of soda, and nitro-muriatic acid. Under this treatment the discharge gradually diminished, and the sinuses soon completely closed. The albumen in the urine remained for a time apparently much the same; it then gradually diminished, and at the end of six months it had entirely disappeared.

This gentleman has again lately been under my care. He had then greatly improved in appearance. His skin was soft and moist; the urine was quite free from albumen; and he had increased in weight.

We were, at the institution of the Clinical Society, forcibly reminded by Sir Thomas Watson of the great gap that exists between the knowledge of certain diseased conditions, and the application of remedies for the cure or relief of those conditions. If it be the principal object of this Society to trace "distinctly and clearly what is the action of drugs and of other outward influences upon the bodily organs and functions," I trust that the case which I have read will be considered one in point. I am aware how difficult it is in any case to say that a patient has been "cured" of his disease. The term, in fact, has by a great many been nearly abandoned. In the last report of surgical patients at St. George's Hospital, four only were reported as cured. Still that there are some remedies which have a great influence in curing diseases, and some diseases which admit of being cured, I do firmly believe; and I think the case which I have related may fairly be said to have been cured by the remedies employed. The principal and most powerful therapeutical agent used was the calomel bath. Of the effects of this mode of treatment, I may now claim to have had very considerable experience. One of its great advantages is that all increased action is determined to the skin; and that, consequently, irritation of internal organs, whether from the effects of the disease or of the remedy, is thereby counteracted. Salivation can rarely take place when the skin acts properly; and, as a matter of fact, I think that I am able to say, when the calomel bath is used in the early stages of syphilis, that the internal organs are very seldom indeed affected.

I know that it has been doubted by some whether calomel, applied in the form of vapor to the surface of the body, is absorbed by the skin. This might be discussed on physiological grounds, but it is with the practical and therapeutical results that we are here concerned. That calomel, as such, enters the circulation I do not wish to undertake to prove. But that the calomel bath, when properly administered, produces all the therapeutical actions which can be produced by the administration of mercury internally or by inunction, I am fully convinced; and, moreover, that it does so without impairing the powers of the constitution or deranging the internal economy in anything like the same degree.

The effect of the calomel bath is increased when the vapor is inhaled; in other words, the mucous membrane absorbs more readily than the skin. But when the medicine is introduced into the patient's system by inhalation alone, the results prove very far from satisfactory. I made, some time ago, some comparative experiments upon this point, and I found that the cases which were treated by the inhalation of calomel vapor alone, from one cause or another, all proved unsatisfactory. Where it can be so managed, perhaps the best way is to introduce the mercury through the skin only. This may not unfrequently be done, but the power of absorption through the skin varies very much in different cases. Often the symptoms will disappear without the gums showing any sign of mercurial action; and this will be the case as well as with regard to those symptoms which have been previously of long continuance as those which are of a recent date. In some cases, where the skin is dry and hard, it has to be softened before any sensible effect is produced either upon the disease or upon the patient's system. Where the skin is already in a good condition, the effects of the baths may be looked for very soon.

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* Read before the Clinical Society of London.

A gentleman was sometime ago under my care who had for years been in the habit of taking Turkish baths, and otherwise paying great attention to his skin, and, as far as that was concerned, he was certainly in very perfect condition. He had well-marked primary symptoms, and a distinct secondary eruption commencing on the body. He was ordered calomel baths, and his mouth very soon became affected. He then continued the baths occasionally for a period of about three months, taking as much care as he could not to inhale the vapor of the calomel. This gentleman would seldom take a bath on two successive days without an increased effect being visible on his gums. He adopted no other specific treatment. He recovered, and has remained well.

In one of the earlier communications to this Society the influence of the skin on the secretion of the kidneys was ably pointed out; and it might be supposed that in the case related the benefit derived may have been due in part to the perspiration produced on the surface. It is not improbable that such may have been the case; but when it is considered that the urine remained intensely albuminous during the whole of the year 1865, and during parts of the years 1864 and 1866, and that it may have been in the same condition for a long time before the patient came under observation, it must, I think, be allowed that a disease here existed which could not be ascribed to any mere functional derangement.

The calomel bath has this additional advantage over other modes of mercurial treatment—namely, that it may be employed in states of extreme debility of the constitution. In the case which I have related no one, I presume, would have thought of giving mercury internally, and very few, if any, would have suggested mercurial inunction.

Since the reintroduction of the calomel bath, it has been used, perhaps, more extensively in some other countries than in England. Dr. Lanesford P. Yandall, a delegate from the Kentucky State Medical Society to the Medical Congress lately held in Paris, was good enough to give me the following particulars of its use, derived from his personal observation. He says: "Fifteen years since my brother, Dr. D. W. Yandall, began the use of the baths. Since that period I have knowledge of about 1500 cases of constitutional syphilis treated by the baths in his practice and my own. We first employed the black oxide of mercury, the red bisulphuret, and the iodide; but for ten years have employed calomel only. We have treated every form of constitutional disease by the fumigation, and (except in a few cases of tertiary syphilis, where mercury had been improperly and excessively used) I cannot recall a case which failed to be relieved. We have frequently found alopecia arrested after the first bath. I believe, as a rule, an improvement may be observed after the third or fourth bath. The ulcerations of the throat then cease to progress, and eruptions on the skin begin to fade. We use a drachm of calomel every night for six nights in the week. We sweat the patient profusely, and keep him in the bath from twenty-five to forty-five minutes. As a rule, a course of baths extends over a period varying from six weeks to two months. I have never seen a patient salivated under these baths. Swelling and tenderness of the gums have been the greatest effects produced. The patients have never lost flesh during the treatment; but have, as a rule, on the contrary, improved in appetite and increased in weight. I remember one patient who in sixty-two days gained thirty-one pounds of flesh. He was profusely sweated six times a week. I have never seen any ill-effects follow this treatment; and, so far as I have been able to keep my eye on the cases, relapses have been *decidedly* the exception to the rule. At the present time I know the whereabouts of probably a hundred persons cured of syphilis by the baths, some as far back as fifteen years, and none of a later date than eight years, who have had no relapse. Some of these patients have since married, and in none of the instances have the wives or children shown any symptoms of syphilitic poisoning. Dr. David W. Yandall was the first to introduce this treatment into the Southern States. At the present time it is the favorite treatment in all the large cities, having almost entirely superseded all others. I am sure that its troublesomeness to the medical practitioner is the only obstacle to its universal use."

Such is Dr. Yandall's statement, which I have given in his own words. The quantity of calomel which he uses is considerably more than I have been in the habit of employing, and he also produces a much greater amount of perspiration than I have thought necessary. The degree of perspiration is very much influenced by the amount of water used in the bath. The water acts as a carrier of heat. An amount of heat becomes latent as the water boils, and is given out again as the vapor condenses on the patient's body. The vapor of water is a very important part of the bath. It not only softens and warms the skin, but it prevents the muriatic acid which calomel gives off when heated from irritating the lungs. The want of some convenient means of doing this was probably the reason why the calomel vapor-bath was not long ago brought into general use. But if the vapor of water be in excess, I have thought that it interferes with the action of the calomel, and I therefore direct only just as much to be used as shall produce a slight moisture on the skin, and sufficiently dilute any irritating vapor which may arise from the heated calomel. In some cases the patients will not bear sweating well. In cases of extreme debility, although they may be benefited by the calomel, yet their weakness is increased by much perspiration. The following is a case in point:—

H. W——, aged forty-two, was admitted under my care into St. George's Hospital on the 25th of May, 1867. He had had constitutional syphilis four years previously. He then had an eruption over the body, and numerous large ulcers, the cicatrices of which were visible. On the 7th of September, 1866, he had been admitted under Mr. Pollock's care for syphilitic disease of the cartilages of the larynx. On the 9th of September laryngotomy was performed, and he kept the tube in until his second admission into the hospital in 1867. This he found absolutely necessary, as he could not breathe without it for more than a minute or two at a time.

Seven weeks before his second admission his nose began to swell and become painful. Four weeks afterwards a discharge came from the nostrils. Externally the nose appeared inflamed, swollen, and flattened. A considerable portion of the right side of the upper lip and the septum of the nose was destroyed by a foul ulcer. The patient was thin, and much debilitated. He was ordered a calomel bath of thirty grains every night, and a pint of the simple decoction of sarsaparilla daily.

On the 4th of June, ten days after admission, the ulcer had spread a very little on the right side of the nose. He felt weaker, and appeared very low. He said that the baths made him sweat a great deal. He was ordered to continue the baths with less water, so as to produce less perspiration.

June 7th.—Less discharge to-day; felt stronger and in better health.

14th.—Was improving daily. The ulcer was now contracting and looking healthy.

22nd.—The ulceration had almost healed, and was covered by a healthy scab.

Savile-row, July, 1868.

# MALARIA FEVER IN CORSICA.

By J. Henry Bennet, M.D.

I have recently returned from a third exploration of Corsica, undertaken with a view to ascertain the conditions under which malarious fever is generated in that lovely island. I wished particularly to learn whether its existence in summer may be considered a drawback to Corsica's being regarded one of the winter sanitaria of the Mediterranean. Having been the one to discover Ajaccio medically, as it were, in 1862, and finding that the efforts I have since incessantly made to direct attention to its special advantages are at last about to be crowned with success, I thought it incumbent on me to study this malaria question, that I might not prove a false guide and prophet.

I landed at Ajaccio on the 22nd of April, and found everything in a prosperous and promising condition. Two medical friends, who had passed a couple of winters with me at Mentone—Dr. Bierman, a German physician, and Dr. Ribton, of Dublin—have definitely settled there, and have placed themselves at the head of the movement. A considerable number of German and British invalids have passed the latter part of the past winter under the care of these gentlemen at Ajaccio, and all, I believe, have been much pleased with their experience of the new health colony. A sufficient amount of money has been subscribed to build a large and commodious hotel, and in the meanwhile every effort is being made to improve the existing accommodation for next winter. These medical gentlemen will take private patients, and there will be at least one good boarding-house. For further details respecting this new health colony I must refer to my work entitled "Winter in the South of Europe." I would only add as it has been extensively reported that I mean to settle there myself, that I have no such intention. I have no other interest in Ajaccio than the philanthropic wish to be of use to the tribe of invalids whom I warn off from the large southern towns, by finding out for them, in addition to Mentone and the Genoese Riviera, a new and interesting locality, with an island climate—in some forms of disease a decided advantage.

On leaving Ajaccio I travelled south to Sartene and Bonifacio, and then ascended the Oriental coast up to Bastia and Cap Pino, examining specially the mouths of the rivers, and conversing with all the native medical men I met. I also paid a visit to the penitentiary of Salabianda on the eastern coast, where 1000 convicts are employed in draining most pestilential marshes, and respecting which I have some interesting details to give.

The following are the results at which I arrived. Wherever a river or torrent descends from the mountains or valleys, and empties itself into the sea, there is malaria, or intermittent fever, in the plains which it waters, from the sea-level to an altitude varying from *100 to 200 feet.* This I ascertained with the barometer. On ascending these valleys, when the barometer indicated an elevation of from 150 to 200 feet I was all but invariably told, "Now we are safe; people can live here all the year round." In the more malarious regions of these plains I generally found that we were only a few feet above the sea-level, and that the country was nearly flat. The fever sets in towards the latter end of June, increases in intensity until October, and disappears towards the end of October, as the nights become colder. It is often very severe, and assumes occasionally the pernicious form. It complicates nearly all other diseases that occur whilst it reigns. On the eastern coast, where there are a series of marshes and ponds through which the rivers empty themselves into the sea, the malarial fever is more severe and more fatal than elsewhere.

There are a few villages and isolated houses in these malarious plains, but they are only inhabited during the cool months of the year. By the beginning or middle of July the harvest is over, and then the entire population abandon their homes and go to the mountains behind, there to occupy other habitations at an altitude of several thousand feet during the hot months. Well-to-do people leave at the beginning of June, to return at the end of October. The working class leave when the harvest is over in July, and return early in October to till the ground.

Intermittent fever exists not only in Corsica, but in all the Mediterranean islands, and on the mainland, under the same conditions, wherever a river runs into the sea. It appears to me that the extreme prevalence of intermittent on the Mediterranean shores, at the outlets of rivers, in a temperate climate, is in a great measure owing to the sea being all but tideless. When storms come, the sand and shingle are thrown up in great masses at the mouth of the rivers. There is no tidal scour as in the Atlantic, so that the waters of the river are pent up, flow back, and swamp all the low lands, saturating them with moisture. As dead and decaying vegetable matter is not purified by the action of winter frosts, as in northern countries, the advent of the powerful summer sun produces that state of soil which gives rise to aguish fevers. One thing is certain, that it requires no marsh or pond to produce malaria. Some of the most pestilential plains I saw—plains where human beings cannot live in summer—were as healthy, as innocent-looking in April and May as the banks of the Trent or the Thames. It really seems quite sufficient to produce aguish fever in a subtropical country that the land should have been saturated with water, either from rain or overflow, in winter, that there should not be a good fall for drainage, and that the July heat should be reached. The natives of these countries know this, and act accordingly; but northerners do not, and are often difficult to convince, to their own destruction. They cannot believe that a smiling cornfield by the side of a pure running stream, such as they have fished in and bathed in day after day in their youth, during sultry August weather at home, can possibly be in these countries pestilential—a place to fly from as soon as spring is over. They pooh-pooh such reports. They think the natives faint-hearted lazy cravens and go about their work as at home, to sicken and die in a year or two. I heard several such tales in Corsica, but the most remarkable is the history of the Salabianda penitentiary, above alluded to. It is an agricultural colony of convicts, founded by the French Government five years ago, in order to drain and reclaim some of the ponds and swamps of the Oriental coast. Unfortunately the Government gave the appointment of director to a clever energetic officer, but a northerner, who knew nothing of Corsica or its fever. He thought all he heard fudge; that the fever was the result of the men working in the heat of the day and being badly fed. So he had the convicts up before daylight, and made them work at the drainage in "the cool of the morning." Then he had them home in the heat of the day for dinner and a *siesta*, and sent them out to work again in the "cool of the evening." The local medical men and the Corsicans around him stood aghast at a plan so contrary to all their experience. For they wait until the sun has dispersed early miasma-loaded vapors, and return home before sunset. But he was not to be persuaded, reported the medical men under him for "insubordination," and had his own way. The result may be easily foretold. He lost during two years 65 per cent. of the convicts, or 665 out of the 1000 each year. The government was horror-struck, and the colony would have been abandoned had not the stubborn director, most fortunately, himself died of the malaria. A more rational man was then appointed, who allowed the medical staff free scope and everything was reversed. The men were sent to work an hour after sunrise, and brought home an hour before sunset. In the summer they were all transferred to the mountains, and various other precautions were taken, with such good results, that last year the mortality, in the same conditions and locality, was only 3½ per cent., or 35 in 1000. These details I had from Dr. Tavera, the present very intelligent medical superintendent of the penitentiary. Great works have been accomplished. One or two large brackish ponds and swamps have been already drained, and a vast amount of land reclaimed.

It seems incredible that such perverse stubborness on the part of officials in authority should exist, and that masses of human beings should be shouldered into eternity through their blind opposition to professional knowledge. But similar circumstances are constantly occurring. If my memory does not mislead me, at the commencement of the Crimean war our troops were located in autumn, by the officer in command, at the side of a malarious fresh-water lake, near Varna, in direct opposition to the medical staff; and soon after the camp was decimated by fever. Again the case of the regiment recently taken to sicken and die at the Mauritius by its colonel, in opposition to the medical staff, must be in everybody's mind.

The deduction I draw from these researches is, that any part of Corsica is safe as a residence, either for invalids or tourists, from the 1st of November to the middle or end of May; but I do not advise either the one or the other to go to Corsica, or to remain there, during the summer months, unless they leave the plains and the outlets of rivers, and settle on some mountain height. As the mountains rise to a height of nine thousand feet, there are many glorious regions where, throughout the heats of summer, a bracing healthy climate and immunity from the intense summer heat of the Mediterranean would be secured. The establishment of some such cool mountain retreat for summer is part of the plan I have been advocating for the last six years. I have found a most lovely spot, called "Foci," some four thousand feet above the sea, on the summit of the pass which crosses the mountains that separate Ajaccio on the western coast from Bastia on the eastern. It is now in contemplation to build a summer hotel there. Such an establishment would be of great value to Nice, Cannes, Mentone, and to the Riviera generally.

Grosvenor-Street, June, 1868.

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# A CASE IN WHICH, AFTER THE REMOVAL OF SEVERAL INCHES OF THE MUSCULO-SPIRAL NERVE, THE SENSIBILITY OF THAT PART OF THE SKIN OF THE HAND WHICH IS SUPPLIED BY IT WAS RETAINED.

By William S. Savory, F.R.S.,

Surgeon to St. Bartholomew's Hospital.

J. L——, aged thirty-eight, a groom, was brought to me at the hospital by Mr. Goddard, in whose service he has been for many years, with a large tumour in the right arm. It occupied the lower third of the front and outer aspect, the biceps bounding it internally. It was very dense, regularly oval, and measured four inches in length and three in breadth. It was prominent, close under the skin, freely movable, and apparently without any firm connexion to surrounding parts. The tumour itself was not painful, except when rudely handled, but he complained of a tingling sensation passing from the tumour down the forearm to the hand. It had existed for several years, but, growing slowly at first, it had of late increased more rapidly, and now rendered the arm almost useless for work. In the lower third of the forearm, over the outer and back part of the radius, there was a much smaller and softer tumour, irregularly flattened, of which he took no heed because it produced no inconvenience whatever. Another tumour, very similar in shape and consistence to the last, was discovered over the right scapula; and a somewhat soft pedunculated growth, about the shape and size of a small pear, hung from the integument near the occipital crest. Imbedded in the skin over the whole body were numerous small tumours, rarely larger than a pea, of whose existence he did not appear conscious. He was a dark, thick-set man, of singular aspect, and peculiar in manner, rather slow of comprehension, with a remarkable hesitation in his speech. His past health had been good, and no evidence of any further disease could be detected. He was anxious to get relief from the large tumour, but otherwise indifferent.

On the 14th of last December the large tumour was removed. A thin stratum of muscular fibres—part of the brachialis anticus—was spread over its surface. It was readily isolated from all adjacent parts except at its extremities, to which the whole trunk of the musculo-spiral nerve was attached. As the nerve evidently passed into and out of the substance of the tumour, it was divided above and below, about an inch from either end, and then the tumour was at once removed. The cut extremities of the nerve appeared quite healthy. When the tumour was divided by a longitudinal section and examined, it was found to be composed throughout of fibrous tissue, which in the outer half was firm, and presented all the characters, well marked, of a fibrous tumour, but towards the centre was more opaque, softer, and friable, and displayed there, in addition to many imperfectly marked fibres, an abundance of granules and molecules of oil. This portion of the tumour was evidently in a state of fatty degeneration. When the nerve was traced into the substance of the tumour, its fibrils could be followed for some distance, spreading out in every direction, until at length they were lost amidst the bands and bundles of fibres. The tumour was clearly a neuroma, and had grown in the midst of the fibrils of the musculo-spiral nerve, unravelling them as it had enlarged. The surfaces of the large wound were brought together and lightly supported by a bandage. All went on fairly well after the operation. For forty-eight hours there was some fever, but on the third day he was free from any constitutional disturbance. At first, too, the arm, forearm, and hand were much swollen, and the integuments puffy, but in a day or two the limb resumed its natural aspect. The wound suppurated, but not freely, and so gradually closed in.

From the time of the operation the muscles of the back of the forearm were paralysed, and the hand dropped forward from the wrist. But, when testing the sensibility of that portion of the skin of the hand which is supplied by branches of the radial nerve, we were not a little astonished to find that it was but slightly impaired. When the skin upon the outer part of the back of the hand, or over the back of the thumb and forefinger, was lightly pricked, the man cried out sharply. He could distinguish in the same region two points of contact when they were not more than an inch apart, both in the long and transverse axes of the hand; when they were closer than this on any part of the back of either hand or forearm, he confused them; and, indeed, in comparing the sensibility of this region with that of the inner portion of the back of the hand, and two inner fingers, or with the corresponding part of the opposite hand, no very striking difference could be detected. All portions, too, of the back and sides of the middle finger appeared equally sensitive. He could distinguish also between the contact of hot and cold bodies in this region as well as in other parts. He always remarked the distinction between the touch of a cold steel sound and one that had been previously dipped in hot water. When desired to experiment upon himself by touching, scratching, or pricking the different parts, he repeatedly declared either that he could perceive no difference of sensibility, or that the radial portion of the dorsum of the hand was rather more sensitive than the other half. These observations were carefully repeated in various ways, day after day, with a uniform result; indeed, the man at last got tired of them, concluding no doubt, that the existence of acute sensibility had been abundantly proved. It need hardly be said that in many of these experiments the man was blindfolded, and otherwise prevented from forming any idea of what we did except through the sense of touch.

Now, what is the interpretation of this remarkable fact? All anatomists will agree that, so far as ordinary dissection goes, the skin on the outer half or thereabout of the back of the hand, and of the back of the thumb, forefinger, and outer portion of the back of the middle finger, is supplied only by branches of the radial nerve; and when any variation is noticed in the distribution of this nerve to the back of the hand, it is almost always that it supplies more than the usual proportion of integument, going on sometimes to the ring finger. I cannot doubt therefore that in this instance the parts in question were supplied in the usual way—only through the branches of the radial nerve. But then how could these parts retain sensibility after the removal of some inches of the nerve-trunk? I can only account for it thus:—We know that in the forearm, just above the wrist, some small branches of the external cutaneous nerve communicate with the radial, and it may be that at this junction the radial receives filaments from the external cutaneous, which so pass down to be distributed, with the filaments of the radial, even to the skin of the hand. This seems to me to be the most probable view of the matter—indeed, the only reasonable one. There should assuredly be more difficulty in conceiving such a transference of the filaments of the ulnar and radial on the back of the hand. The arrangement of the small branches so near their distribution would hardly admit of this. But if this explanation be the true one, it suggests a much larger question. Are nerves so isolated in their distribution as they are now believed to be? Is not the purpose of the communication between different nerves in their course more extensive and complete than has been hitherto recognised? The question is one which appears to be beyond the reach of any ordinary dissection and perhaps it will be best answered hereafter by observation and experiment in cases like the present one.

Let me add that this case is not an isolated one. There was a case in the wards of Professor Richet at La Pitié, which excited much interest and speculation. In the patient, a young woman of twenty-four, the median nerve "was completely cut through" a short distance above the wrist. "Yet sensibility of the lower end of the nerve was unimpaired. The patient screamed with pain as M. Richet excised a minute portion of it for microscopical examination. All the parts to which the median nerve is distributed had likewise retained their sensibility." But "the muscular contractility of the parts supplied by the nerve was completely lost, and the application of electricity failed to elicit any contraction." See *Gazette des Hôpitaux*, 1867, Nos. 131 and 134, for additional details and a discussion of the chief facts observed in this remarkable instance.

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## THE PREVENTION AND TREATMENT OF SUN-STROKE.

By W. C. Maclean, M.D.,

**Professor of Military Medicine, Army Medical School, Netley.**

The number of cases of sun-stroke reported in the general and medical press induces me to offer a few observations chiefly on the prevention and treatment of this formidable affection. In my article on Sunstroke published in the second volume of "Reynold's System of Medicine," I pointed out that sportsmen in India constantly expose themselves in the hottest weather when in pursuit of game. Those who use reasonable precautions, who protect the head and nape by a head-dress adapted to the purpose, wear loose clothing of a suitable material, and abstain from stimulants, rarely suffer from sun-stroke.

On the other hand, men who are made to undergo fatigue under a hot sun, dressed as British soldiers generally are, in tight-fitting clothes, and encumbered with heavy and badly-adjusted accoutrements, wearing a head-dress which not only gives no protection, but concentrates the sun's rays on their heads' suffer from insolation in a fatal form. In illustration of this I quoted the well-known example of the 68th Regiment, which, dressed and accoutred in the manner above indicated, paraded at Madras at an early hour in the afternoon in one of the hottest months of the year, to attend the funeral of the late General M'Dowell. The result, as my friend Sir Ranald Martin has described, was, that before the funeral parade was over, the men began to fall senseless; one died on the spot, two more in less than two hours, and men suffering from insolation in various degrees were brought into hospital all that night and part of next day. I further illustrated this part of the subject by the case of the 98th Regiment, which, dressed and accoutred as above, took part in the capture of Chin-Kiang-Foo, the final military operation of the war in China under Sir Hugh (now Lord) Gough. A great many men were struck down by the sun; about fifteen died on the spot. For the most part they fell on their faces, gave a few convulsive gasps, and expired. It is a noteworthy fact, of which I was an eye-witness, that the 18th Royal Irish and the 49th Regiments, employed on the same day, in the same service, and exposed to the same fierce heat, hardly suffered at all. Why? They marched and fought under the guidance of officers experienced in tropical war, who had for their advisers medical officers of equal experience, and the result was that the soldiers went into action without their leather stocks, with their jackets loose and open, and above all, with white covered forage caps on their heads. In the same article I have shown how high temperature induces a variety of the same terrible symptoms when men are massed in ill-ventilated barracks, and gave some historical examples in point. From the above some important lessons may be gathered for our guidance in this exceptional season.

In such tropical weather as we now have, troops should parade for exercise only in the early morning or evening, and even then as little encumbered as possible; and, in case any man should fall out, an abundant supply of water should be at hand for drinking and douching purposes.

For those who are obliged to exert themselves in the sun, cold tea is the safest and, in the long run, the most refreshing beverage. Every experienced Indian sportsman will subscribe to this. It is notorious in the East, that the sportsman who "come to grief" from the sun are those who endeavor to "support nature" with brandy-and-water and strong ale.

When walking in the sun, particularly in the hot streets, when there is little movement in the air, the use of an umbrella, with, for choice, a white cover, can hardly be thought effeminate. It is almost useless to add, after what has been said, that at such a temperature as we have lately had it is dangerous to mass a number of people in ill-ventilated dormitories, although it is probable that the formidable symptoms of what may be called barrack insolation are seldom seen under a temperature of 90° Fahr.

The best and safest mode of treating a person struck down by heat is at once to remove him to the nearest shade, to strip him, and assiduously to douche him with cold water over head, neck, and chest. By this means a powerful impression is made on the cutaneous nerves, the effect of which is to set suspended respiration in motion, at first by catches and gasps, finally in a more regular manner. If the heat of skin be, as it usually is, high, this simple operation should be done again and again. The patient should be made to drink freely of ice-cold water, if that be at hand; if vomiting results so much the better, for it will mechanically aid in diminishing extreme congestion of the lungs, which is one of the most invariable consequences of the attack. The patient should be made to inhale ammonia, with the usual precautions, from time to time. As soon as sensibility is restored, it is well to give a purgative; moderate diarrhœa favors recovery. If sensibility be not restored by the above means, shave the head and apply a blister. In the convulsive form of the disease chloroform may be inhaled, as advised by Dr. Barclay, but always under medical supervision.

# ON A CASE OF PARTIAL PLACENTA PRÆVIA.

By Robert Fowler, M.D.,

District Medical Officer of the East London Union.

About one A.M. Nov. 9th, 1867, I was summoned by the union midwife to M. M——, aged thirty-five, residing at King-court, one of the most wretched places in my district, on account of excessive ante-partum flooding. The patient *had arrived at full time* with her sixth child. She had enjoyed good health in her pregnancy, *with the exception of a pain in the left hip during the latter months.* Her five previous labours had been natural and quick. In this last pregnancy *her work had been harder than heretofore,* she having to carry heavy weights up and down stairs. A little before midnight of Nov. 8th she was awoke *by a sudden gush of fluid per vaginam, without the least pain. She had no sudden excitement or unusual physical exertion during the preceding day.* Finding that the escaping fluid was blood, she sent for the midwife, who found her standing up and gaping, and still profusely flooding. She was placed on the bed, some brandy-and-water was administered, and an unsuccessful attempt was made to ascertain the presentation. On my arrival I found her in a state of collapse—pale, cold, feeble voice, and almost pulseless. Fluid and clotted blood was still pouring from her and "she had flooded a pailful." *The presentation was so high* that I could not make it out, until I had the whole hand in the vagina. The os was dilated to the size of the mouth of a wineglass. *It was impossible without great and excessive violence to have got my hand through the os.* I plainly felt the edge of the placenta reaching to the level of the posterior lip of the os, and the posterior portion of the cervix was clearly thickened by the attachment of the spongy mass. In front of this latter I detected the fœtal head *covered with the membranes. There was not the least uterine pain.* Finding it impracticable to introduce my hand, I passed two fingers through the os, and *completely detached the placenta, as high as my fingers could reach from its cervical attachment. Immediately I had effected this all hæmorrhage ceased.* I then gave one scruple of powder of ergot in brandy-and-water, and covered the poor shivering thing with what wretched means were at hand. There being no food in the house save bread and tea, I had some of the latter made, and in about half an hour's time gave her therein another dose of the ergot. No pain followed. The woman had, however, wonderfully rallied, had become warm, talkative, and acquired a fair pulse. Although the membranes somewhat protruded through the os, I now determined, as there seemed no necessity to hasten or force labour, to *watch and see what Nature could or would do.* As a matter of precaution, previously plugging the vagina, I left her in charge of the midwife, who had soon also to leave being sent for to another case. I saw the patient again at five A.M. *There had been no hæmorrhage and no pain.* She was doing well. To continue her brandy, tea, and sopped bread. At nine A.M. she obtained the necessary medical comforts. At two P.M. matters were still the same. As she complained of inability to make water, I removed the plug, *which was scarcely stained with sanguineous discharge.* She received four visits from the midwife during the day. At eleven P.M. I found her complaining of pain in the lower belly. This evidently depended on distended bladder, and was at once relieved by catheterism. The os was now more dilated and softer, and the head was just entering the brim. There were still no pains. In an hour after my visit to the patient pains came on, which the midwife on her arrival found well established. *Nature had ruptured the membranes,* the head was in the cavity, and completely through the os. *A still-born male child was naturally expelled without the least return of hæmorrhage* either before or after its birth, at between two and three A.M. of the 10th. *The bones of the child's head were separated, the whole body was discolored, and the cuticle desquamating.* Unfortunately no notice was taken of the appearance of the placenta. The woman did perfectly well.

*Remarks.*—This case very forcibly illustrates the implicit reliance which may be put on the ability of Nature (when properly assisted) to terminate a case of placenta prævia. The italicised portions of the above description sufficiently indicate the several physiological and therapeutical points so ably laid down and combated by Dr. Barnes, in his Lettsomian Lectures for 1857. I believe the case more than establishes his views, inasmuch as, having full command of the patient I determinedly resisted the very great temptation of rupturing the membranes.

Bishopsgate-street Without, June, 1868.

# ACUTE SYNOVITIS OF KNEE-JOINT; SUPPURATION.

## TREATMENT BY CARBOLIC ACID.

By T. Hamilton, M.B., F.R.C.S.E.

On Monday, the 22nd of June last, I was called to see I. M——, a young woman aged twenty-two. She told me that whilst at work three days before she was seized suddenly with pain in her left knee, which swelled soon afterwards. Since then the pain and swelling had increased. I found the joint much swollen and red, with distinct fluctuation on each side. Ordered hot fomentations and rest. During the next three days she continued in much the same state.

On Friday, June 26th, as suppuration had evidently taken place, having previously dipped the knife in a strong solution of carbolic acid, I evacuated between six and eight ounces of pus, by incisions about an inch and a half long, on each side of the joint. I allowed the matter to escape under what Mr. Lister has termed the antiseptic veil. A paste of carbolic acid, linseed oil, one part to three, and whiting, was applied to the wounds on lead paper. (I could not obtain tin-foil.) Slight pressure was placed on the sac of the abscess by two pads of lint on each side of the joint with a bandage.

Next day I found the patient free of all pain. Pulse 80. Had slept well. On removing the dressings, a little bloody serum escaped, but no pus, and since then none has come from the wounds.

For the next four days I applied the carbolic, paste, but each day weaker.

July 1st.—Swelling entirely gone. No pain. No discharge. Wounds superficial, and nearly healed. Slight excoriation of the neighboring cuticle, from the action of the carbolic acid, for which I applied water dressing.

This case requires no comment. The rapid cure was, without doubt, due entirely to my having adopted the plan of treatment suggested by Professor Lister; and I would venture to say that under no other form of treatment at present ememployed would so satisfactory a result have been obtained in six days from laying open the joint.

To-day (July 2nd), though I still keep the joint comparatively at rest, the patient can move it freely without the least pain.

Canonbury, London, July, 1868.

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Procemium.

### HYDATID TUMOURS OF THE LIVER,

AT THE

### MIDDLESEX HOSPITAL

(Under the care of Dr. Murchison),

### GUY'S HOSPITAL

(Under the care of Dr. Hilton Fagge and Mr. Durham),

### ST. MARY'S HOSPITAL

(Under the care of Dr. Sibson),

### ROYAL INFIRMARY FOR CHILDREN, WATERLOO-ROAD

(Under the care of Dr. Philips and Mr. Cooper Foster).

A short time since, on a visit to the *Middlesex Hospital*, we chanced to have the opportunity of examining a man who had been treated by Dr. Murchison in 1866 for hydatid tumour of the liver. The patient, whose case is related in Dr. Murchison's Clinical Lectures, was a young man in whom an abdominal tumour was first noticed in 1864. This was partially emptied by tapping in April, 1866. A small canula and an exhausting syringe were employed, but the operation had to be abandoned on account of pain and faintness. In December of the same year he was again admitted. At this time there was a prominent tumour in the epigastrium, extending into both hypochondria, and evidently connected with the liver. It filled up the space between the sternum and the umbilicus, and caused a slight bulging of the ribs on both sides, particularly on the right. The lower margin was one inch from the umbilicus, and the measurement was six inches transversely and five inches from above downwards. The hepatic dulness was five inches in the right mammary line. The tumour was globular, elastic, distinctly fluctuating, and presented the characteristic "hydatid vibration" in a marked degree. A fine trocar was introduced into the most prominent part of the tumour, and twenty ounces of fluid were drawn off without the use of any syringe. The fluid was opalescent, colorless, and alkaline, with a specific gravity of 1009; it contained no albumen, but yielded a copious white precipitate with nitrate of silver; numerous hooklets and several entire echinococci were discovered in it with the microscope. No unfavorable symptom followed the operation. In five days the patient got up, and eleven days after the operation he quitted the hospital, the hepatic dulness in the right mammary line being only three inches and three-quarters. Four days after leaving the hospital the man was attacked by typhus fever, at the beginning of which the tumour seemed to enlarge, disappearing however during his convalescence. When we saw him, one year after this, there was nothing whatever abnormal to be observed in his abdomen—no trace, indeed, of the disease with which he had been affected.

We are inclined to think that the success attendent upon the puncture of hydatid tumours is not as yet appreciated by the profession generally as it should be, although it is many years now since some were tapped by Sir Benjamin Brodie, and the patients made a good recovery. Successful cases were afterwards published by Dr. Bright, and by many other observers. It is only lately, however, that operative interference has been much resorted to, but the success attendant upon it has been very remarkable. Dr. Murchison has collected particulars of 46 reported cases in which tapping was performed. In 35 of these the operation was perfectly successful; in 10 cases it was followed by suppuration, necessitating a free opening; 8 of these 10 cases recovered, and 2 died; but in neither could the death be immediately referred to the operation. Dr. Murchison, after a careful consideration of the whole matter—of the dangers of the disease when left alone, and of the inutility of medicines on the one hand, and the success hitherto obtained from the operation on the other, expresses a decided opinion that in all cases where an hydatid tumour is large enough to be recognised during life, *and is increasing in size*, it is advisable to puncture it at once. If the tumour be diminishing, it is as well to wait; but it is not necessary to wait, as was formerly advised, for the formation of adhesions, or to endeavor to induce them. The increase in size is a point we should think of great importance. We remember one day hearing Dr. Wilks make the pertinent inquiry, "What is the natural duration of life of the echinococcus hominis?" So long as it is contained within the hydatid cyst it remains undeveloped; but, finding its way into the alimentary canal of certain animals, it is developed into a tapeworm. Death however, sometimes, as we know, interferes with this change, and the hydatid tumour disappears with the life of the echinococcus. These creatures, then, are certainly not immortal. At what age may they be expected to die?

For the present, however, in the absence of this information, the increase in size of a tumour of this description must be considered sufficient reason for active interference. Different plans of operation are adopted in some of the hospitals, and we propose to illustrate these. We may note *imprimis*, however, that two plans which were formerly employed are no longer used. One was to make a very free opening into the tumour, and the other was to inject certain irritating substances, such as iodine, alcohol, bile, or oil of male fern. Both these processes were attended with no small danger, and they are quite unnecessary, experience having satisfactorily shown that the removal of the liquid, which is as thin and limpid as water, suffices to destroy both the parent hydatid and its offspring.

Dr. Murchison employes a very fine trocar, and selects for puncture the point where the hydatid fluid appears to approach nearest to the surface, taking care to prevent the entrance of air. For this purpose he removes the canula before the whole of the fluid has been drawn off, or as soon as it ceases to flow in a full stream first passing a wire through the canula to ascertain whether the stoppage be due to the closure of its orifice by an hydatid vesicle. After removal of the canula the opening is covered with a piece of lint steeped in collodion, over which a compress and bandage are applied. For forty-eight hours the patient is kept in the recumbent posture, and every movement of the body is strictly prohibited. Dr. Murchison has observed it not unfrequently happen that about a week or ten days after the operation, the tumour, which had much decreased in size, appears again to enlarge. This enlargement, however, he has satisfied himself, is due, not to a reaccumulation of the hydatid fluid, but to inflammatory products thrown out probably between the collapsed parasite and the surrounding hepatic tissue, which are slowly reabsorbed. These observations do not apply to cases where the sac, from any cause, has undergone suppuration, for in these a large permanent opening with an india-rubber tube, through which the sac can be washed out frequently with solution of carbolic acid, is the only justifiable method of operating. Adhesions must be present or have been previously excited, in order to prevent risk to the peritoneal cavity.

*Tapping by means of the hypodermic syringe.*—In *St. Mary's Hospital* last week we found a woman aged thirty-three (Ann M——), who had been admitted under Dr. Sibson's care on March 22nd, with two hydatid tumours of the abdomen. A year before admission she had felt pain in the epigastrium towards the right side. Last December she first observed a small swelling in that situation, which had since gradually increased in size. At the time of her coming into hospital two tumours were to be perceived: one in the situation described, which measured about four inches in every direction; the other, in the left hypochondrium, was felt coming down to left side of navel, and during inspiration descending below it. At the end of May the first of these swellings was punctured, and two pints and a half of fluid were drawn off. As a result, the swelling went down greatly in size, and the other tumour rose in the abdomen, apparently by reason of the increased space thus caused. At the time of our visit Dr. Sibson had the second tumour punctured. This was done in the same way, he told us, as he had found convenient on previous occasions. By means of Richardson's apparatus a space of skin the size of half-a-crown was frozen over the most prominent part of the tumour. A common hypodermic syringe was then thrust into the swelling. The piston being lifted, the cylinder was speedily filled with a clear fluid. Next, the body of the syringe was unscrewed and removed, an india-rubber tube being then adapted to the canula portion, which was left in the wound and allowed to drop into a suitable vessel at the bedside. On the former occasion the two pints and a half of fluid took three hours in removing in this way. Dr. Sibson does not employ the syringe after the first. The plan seemed to us a convenient one for removing a small quantity of the fluid for examination, and it presents also the advantage of furnishing an unusually fine canula and trocar in one. Under the microscope we had the opportunity of seeing a cyst, which contained some of the characteristic hooklets. Dr. Sibson succeeded in completely curing a little child last year in the manner described.

*Treatment of hydatid tumours by electrolysis.*—There is a patient just now in *Guy's Hospital*, in the clinical ward, under the care of Dr. Hilton Fagge, in whom an attempt has been made to cure an hydatid tumour in the liver by electrolysis. There is every probability of the operation being successful. The patient is a young man who was admitted on June 4th, with a swelling in the right hypochondrium, which had been observed for about four months. There was a space of dulness in the hepatic region, measuring about seven inches vertically; the ribs on that side was bulged, and the intercostal spaces prominent. There was no jaundice, and but little pain. The tumour presenting all the characteristics of hydatid disease, and moreover increasing in size, it was determined to operate upon it, and this was done in the following way. On the 18th of June, Mr. Durham introduced two steel gilt needles into the most prominent part of the swelling, one piercing the space between the eighth and ninth costal cartilages, and the other about two inches behind it, between the ninth and tenth ribs. The needles were passed into a depth of two or three inches. One of them was then evidently free in fluid, for it could be moved about, and rubbed against the other. The posterior needle doubtless passed through the diaphragm, as it was jerked about during the movements of respiration. Both needles were now connected with the negative pole of a voltaic battery of ten cells (continuous current) freshly charged. The posterior pole, with the ordinary conductor, was placed between and near the needles. The current was allowed to pass for twenty-five minutes, and during this time there was a crackling feeling under the finger, as of emphysema, which was thought to be due probably to hydrogen gas liberated from the fluid by the action of the voltaic current. After the operation there was some pain for four or five hours. In the evening the temperature was 100·9°, and the patient did not sleep well that night. Next day his temperature was 99·6°; and on the following morning (June 20th) it had risen to 101·2°. At this time the hypochondrial tumour had greatly disappeared, and the man expressed himself as feeling quite well. On examining the right side of the chest, however, Dr. Fagge was a little startled at finding absolute dulness behind up to the fourth or fifth dorsal vertebra; and over this extent of thorax there was loss of vocal vibration, marked tubular respiration, and ægophonic character of voice—conclusive evidence, indeed, of a large effusion of fluid. There was a very little pain about the situation of the needle wounds; but there had been no characteristic pleuritic pain. The man lay on his back, but did not appear at all distressed. Taking all the circumstances into consideration, Dr. Fagge told us that he was inclined to think that the presence of fluid in this pleura was due to mechanical pressure by the effused gas upon the hydatid liquid, which thereby got squeezed through the puncture in the diaphragm into the pleural cavity. The absence of constitutional distress corresponding to so large a surface of pleural inflammation (supposing the cause to have been pleuritis) would seem to render Dr. Fagge's explanation a very probable one. The man went on perfectly well, the chest symptoms rapidly disappearing. When we listened to him on July 10th (just twenty days after the appearance of the fluid effusion), we found the very slightest trace only of dulness on the right side of the chest behind, no loss of vocal vibration, no ægophony; but at the close of each inspiration a slight creaking only. No abdominal tumour was to be discerned. Dr. Fagge told us of a child whom he treated last year by the same method. After four months the tumour, although greatly diminished, could still be felt. At the present time it has quite disappeared.

A similar mode of procedure was adopted three weeks ago on a child of thirteen years of age, under Dr. Phillips's care, in the *Royal Infirmary for Children, Waterloo-road.* In this case there were two tumours: one in the epigastrium, the other at the lower border of the liver. Mr. Cooper Forster applied the voltaic current in the manner described. In this case no trace of gas was to be observed, On the second day after the operation an attack of urticaria occurred There was no peritonitis. Diminution of the tumours was quite gradual. In about a week no margin could be felt; in ten days the liver was clearly to be made out, and was found to be itself enlarged. Where the cysts were placed the structures are now quite flaccid. It seems possible from the persisting enlargement of the liver that another cyst exists in its interior. We ought to say that in each of these cases two or three drops of fluid escaped on the introduction of the needles. The escape was unintentional, and indeed unavoidable. It is manifest that ere we can be quite convinced that the hydatid cysts have been killed by the electric current, the simple escape of a few drops of the fluid should be proved to be insufficient to destroy the vitality of the parasite. In the ordinary tapping operation it is impossible to believe that all the fluid is evacuated. The question then is to determine what quantity is sufficient to effect the desired purpose.

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## ROYAL FREE HOSPITAL.

### CASES OF VARICOCELE; OPERATIONS FOR THE RADICAL CURE; RESULTS.

(Under the care of Mr. John D. Hill.)

In drawing attention to the treatment of varicocele, Mr. Hill remarked that some ingenious operations had been devised for its radical cure by several well-known British and Continental surgeons, amongst whom might be mentioned Henry Lee, Wood, Erichsen, Ricord, Velpeau, Vidal, &c., and he had advantageously studied the special merits of these operations previous to employing the method presently to be described. We report the following cases because Mr. Hill had had the opportunity of keeping them constantly under observation up to within a very recent period; and although in principle there is nothing new to record, yet we think that the practical points which have occurred to him may be worthy of attention by those who are interested in the subject. The operation which he selected was the simple twisted suture of Velpeau, with the addition of a piece of bougie placed across the pins and beneath the ligature (as practised by Erichsen).

Case 1.—William B——, aged twenty-two, by occupation a laborer, was admitted into the above hospital on August 8th, 1867. Had always enjoyed good health until about eighteen months previously, when he first noticed a swelling on the left side of the scrotum, which he attributed to a strain while lifting some heavy timber. This swelling gradually increased, causing him a dull aching pain in the groin and loins, which after exertion became almost intolerable. This and the subsequent wasting of the testicle induced him to seek advice.

*Examination.*—The scrotum hangs very low on the left side; the testicle is atrophied and soft, and the convoluted veins are large and turgid. On coughing, a very distinct impulse can be felt; but in the recumbent posture the veins can be emptied. The bowels have been well relieved.

The following operation was performed on Aug. 10th, 1867. The patient having been kept in the erect posture until the last moment was now placed in a recumbent position; and while an assistant held aside the vas deferens, three pins, three-quarters of an inch apart, were passed behind the veins, including as little as possible of the skin of the scrotum; a piece of thick bougie, cut three inches long, was then placed crosswise; some strong silken thread was now applied to each pin in a figure-of-8 over the bougie; a small cork, a quarter of an inch in diameter, having been slipped along the pins, the operation was completed by cutting off their points immediately external to the corks.

11th.—Complains of pain in the left loin, and there is slight œdema of scrotum below pins; scrotum to be elevated with a small pillow; bowels relieved.

12th.—There is œdema between middle and lower pins; complains of a sense of tightness there. Snipped three threads of lowermost pin, with immediate relief.

14th.—Lower pin is producing irritation; pin removed; veins give a semifluid impression; bowels confined. Ordered half an ounce of castor-oil.

16th.—Veins feel more solid; second pin removed; bowels well cleared out after aperient.

18th.—Veins feel firm, and their outline can be defined; upper pin removed.

21st.—Pin-holes healed up; all swelling of scrotum gone; veins feel cord-like.

22nd.—Discharged. Instructed to wear a suspensory bandage for three weeks.

Sept. 12th.—Bandage removed.

June 3rd, 1868.—Is now quite well, and able to follow his usual employment. The old veins feel like thin cords, and are not much larger than the vas deferens. There has been no return of varicosity in the supplementary vessels, and the patient thinks his testicle is recovering its size. It is not less and decidedly firmer.

Case 2.—Henry B——, aged twenty-three, single, by occupation a laborer, was admitted into the hospital on the 23rd of August, 1867. Had enjoyed pretty good health, although he was of a weakly constitution. Had suffered four years with varicocele (left), attributable, according to his own notion, to lifting heavy weights. Latterly he had been much troubled with a dragging pain in the groin. This and the wasting of the testicle caused him so much alarm that he applied for advice.

*Examination.*—The scrotum hangs three inches lower on the left side than on the right. The veins are very large and tortuous, and the testicle is atrophied and soft.

The same operation was performed as in the previous case on the 24th of August, 1867; after which the scrotum was well supported by a pillow.

Aug. 25th.—There is œdema of the scrotum below the pins, but no tenderness; pain in the course of the cutaneous nerves.

26th—Tenderness about the lower pin, and swelling between the middle and lower pins. Snipped several cords of both ligatures, with immediate relief.

27th.—Swelling diminished. Lower pin producing irritation. Pin withdrawn.

28th.—Veins feel semifluid. Middle pin causing inflammation. It was removed.

30th.—Veins feel firmer.

Sept. 2nd.—Veins feel solid. Upper pin withdrawn.

6th.—Pin-holes healed; scrotum sound; veins feel hard and unyielding.

7th.—Discharged. To wear a suspensory bandage for three weeks

28th.—Bandage removed. Veins feel cord-like.

April 22nd, 1868.—There is no return of varicosity. Veins feel like fibrous cords. Testicle firmer.

Case 3.—Charles M——, aged twenty-four, single, by occupation a leather-cutter, was admitted into the hospital June 26, 1867. His general health had been delicate, and he was of a nervous temperament. Had suffered with varicocele (left) about three years. He fancied he had strained himself somehow, but could give no very reliable information as to an accident. He applied to the hospital because he feared his left testicle was wasting away. Moreover he had been long troubled with dragging pains in the loin and groin of the affected side, which on exertion, became almost insufferable.

*Examination.*—The veins are large and turgid the scrotum very lax, and the testicle atrophied and much softer than the right one.

On June 29th the same operation was performed as in the previous cases.

July 1st.—There is slight œdema of the scrotum, and pain in the course of the cutaneous nerves.

2nd.—Œdema between the middle and lower pins. Complains of tightness and a sense of fulness there. Several of the cords of the middle and lower ligatures were snipped with immediate relief.

3rd.—Swelling abated; veins feel semifluid.

4th.—Redness and pain around lower pin. Pin removed.

5th.—Slightly better. Tenderness still felt Middle pin removed. Veins feel more solid.

7th.—Œdema nearly gone; veins becoming firm Upper pin removed.

10th.—Swelling gone; veins feel firmer, and can now be defined. Pin-holes healed up.

14th.—Veins now feel quite solid, and are reduced in calibre.

17th.—Veins can now be felt as firm cords. Discharged. Instructed to wear a suspensory bandage for three weeks.

Aug. 7th.—Bandage removed. Veins are dense and unyielding and about twice the size of the vas deferens.

May 6th, 1868.—The obliterated veins now feel cord-like. The patient is in good health, free from all local discomfort, and there is no return of varicosity in the anastomotic veins. Testicle is firmer.

Case 4.—Richard Y——, aged nineteen, single, by occupation a laborer, was admitted into the hospital August 30th, 1867, with a large varicocele (left), which had been gradually coming on during the preceding eighteen months. He now had become greatly alarmed, because he had only just discovered that his left testicle was wasting away; but he had for a long time been troubled with seminal emissions, and pain in the loins and left groin, the latter being much increased on exertion.

*Examination.*—The scrotum hangs low on the left side, and the tortuous veins can be seen as large as a quill. The left testicle is atrophied, and softer than the right one.

The same operation as in the other cases was performed on August 31st.

Sept. 1st.There is œdema of the scrotum below the pins. Bowels well relieved.

2nd.—Complains of tenderness near lower pin; also there is an erythematous blush of the surrounding part. Removed pin and snipped three threads of middle ligature.

3rd.—Swelling less; pain and redness gone.

4th.—Veins feel semifluid; swelling absent.

5th.—Slight irritation near middle pin; removed it, and snipped three threads of upper pin.

7th.—Veins feel solid. Removed upper pin.

12th.—Pin-holes healed; veins firm and contracting; can now be well defined.

15th.—Discharged. Veins cord-like. To wear a suspensory bandage for three weeks.

Oct. 7th.—Bandage removed. Three firm cords can be felt—i. e., the obliterated veins.

July 1st, 1868.—Is now in good health, and there is no return of varicosity. The veins are to be felt as small fibrous cords, each being rather smaller than the vas deferens. The testicle is much firmer.

*Remarks.*—The practical points to which Mr.

Hill directed his attention may be thus briefly stated:—

1st. *As to the necessity for an operation.* These patients were unable to follow their ordinary employment by reason of pain in the groin, loin or testicle, which became increased upon exertion, notwithstanding the constant support of a suspensory bandage. Moreover, they had naturally become alarmed at the wasting of the testicle; hence the desirability of an operation.

2nd. *In the performance of the operation* there are three points worthy of notice:—1. To keep the patient in the erect posture until immediately before the pins are inserted, so as to enable the operator to make out the exact outline of the veins while distended and thus to avoid the danger of wounding them. 2. To enclose as little of the scrotum as possible within the ligature, so as to secure direct pressure on the veins, and thus obviate corrugation or fluting of the scrotum. 3. To exert only sufficient pressure with ligature to obliterate the veins, so as to guard against ulceration or death of the skin by tightening the ligature too much.

3rd. *As to the after-treatment.*—In these, as in all other operations for a radical cure, much depends upon the after-treatment. 1. To regulate the bowels, and obviate pressure on the venous trunks, and to support well the scrotum with a pillow. 2. To slacken the ligatures as œdema and tenderness become developed, and to remove the pins on the first approach of inflammation. 3. To remove the pins from below upwards, and to slacken the ligatures in like manner. 4. To keep the patient entirely in the recumbent posture until the veins are quite solid; and, lastly, to instruct the patient to wear a suspensory bandage for three weeks after he is allowed to get up, thus affording support to the supplementary vessels until they are capable of maintaining the current of blood.

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## WESTMINSTER HOSPITAL.

### STRANGULATED INGUINAL HERNIA; OPERATION; PERITONITIS; DEATH.

(Under the care of Mr. BARNARD HOLT.)

How small a part as a symptom constipation sometimes plays in dangerous and even fatal cases of strangulated hernia is well shown in the following case, for particulars of which we are indebted to Mr. R. H. Lloyd, dresser to Mr. Holt.

John M——, aged thirty-three was admitted into Westminster Hospital on March 8th, at about 12 P.M., in a state of drunkenness, suffering from a large tumour of the right side of the scrotum, which had suddenly appeared after making a false step on the kerbstone the same evening between 5 and 6 o'clock. He states that he has suffered from hernia for the last fifteen years, but it has never given him any trouble, and he has always been able to reduce it entirely. He has never worn a truss. The tumour is on the right side, and very large and tense—about the size of a small cocoa-nut,—and is slightly constricted at the external abdominal ring, which is stretched to its utmost. There is a good deal of depression, and the patient is in much pain, tossing about restlessly. He lies on his right side, with his thighs flexed on his abdomen, which is tympanitic. The tumour is resonant over the greater part of its surface, except at the upper part, where it is dull on percussion. A sense of fluctuation is conveyed to the hand, but there is no translucency of the tumour. He had a warm bath and opium shortly after his admission, which relieved the pain; and the hernia could be partly returned, but not entirely. His bowels had been open up to the time of the accident and he has even had a motion since his admission.

March 9th.—11.15 A.M.: Pulse 100, small. Complains of very great pain. Has been sick three times in the course of the night, but the vomited matters have only been mucus and the contents of his stomach. The tumour has increased in size since he was admitted. Ordered to have ice over the tumour, and the following enema: castor oil and oil of turpentine, of each half an ounce: water to sixteen ounces.–Mr. Holt saw the patient at 1. 45 P.M. He was immediately placed under the influence of chloroform till complete anæsthesia was produced, and an attempt was made to reduce the hernia by the application of the taxis. This proving ineffectual, the scrotum was shaved in part, and an incision about two inches and a half long was made in the long axis of the tumour, beginning a little above the external ring. In this incision, the skin, superficial facia, and the areolar tissue were divided, and a small vessel required ligature. The dissection was carried on very carefully through the layers of tissue until the sac was reached. A small opening was made into it, and a director introduced, on which instrument it was divided to the required extent. The instant the sac was opened, the intestines bulged out, covering the knife, and a quantity of serous fluid gushed forth from both the upper and lower parts of the wound. The tendinous aponeurosis forming the external ring was notched, and the intestine returned bit by bit. The sac contained a very large quantity of intestine; the part which was first seen was of a deep claret color, and the part that was nearest the place of stricture was deeply congested and almost black, still however preserving its glistening appearance, and there were no patches on any part of it. There were no adhesions between the sac and the intestine. The edges of the wound were brought together by several sutures a thick pad was placed over the external ring, and the thighs tied together. Ordered fifteen minims of the sedative liquor of opium immediately; ice to be taken, and milk diet, with beef-tea.

10th.—Slept fairly; has been sick several times during the night; pulse 145, small but easily compressible; has had an action of the bowels. He lies on his back with his knees drawn up, and complains of pain over the abdomen of a gnawing character, especially if pressed upon. The breathing is almost entirely thoracic, and the respirations 32 per minute. The abdomen is somewhat tympanitic. He has an anxious, drawn look. Ordered brandy and soda-water, two grains of chloride of mercury and half a grain of opium powder every four hours, and a mixture containing ammonia and chloric ether. In the evening the pain in great measure left him; but his abdomen became more tympanitic, and he became weaker. A little later he had five motions one after the other, and death took place at 12. 30 A.M. on the 11th.

The post-mortem examination took place at 4, P.M. on the 11th of March. The body was that of a strong, well-built man. On opening the incision no sign of adhesion could be seen except at the upper part, where there had been slight effusion of plastic lymph. On carrying the incision higher up, the small intestines, and in fact all the intestines, were found much distended with air, and glued together and to the peritoneum by masses and bands of coagulable lymph. There was a good deal of serum, tinged with blood, in the abdomen; and the small intestines were shiny and firm throughout the whole of their extent, and presented colors of a dark-brown, yellow, and green. At some spots, especially near the attachment of the mesentery, they looked as if the mucous membrane had been scarified, and the submucous tissue blown up.

Mr. Holt remarked that although, in the above case, the patient had been the subject of hernia for some years, yet it was so inconsiderable as not to occasion him any inconvenience or to require the application of a truss. It might therefore be likened to those cases where a large mass of intestine had become suddenly protruded, and where the patient was at once placed in the most imminent danger. The suffering in such instances was always severe; the peritoneum was stretched to the utmost, and the intestine pressed into the smallest space. These cases, Mr. Holt said, should be operated upon without delay. If the taxis, under chloroform, is not successful, no time should be lost, as every hour the intestine remains strangulated the danger to the patient is materially increased. In performing the operation, great care is required not to injure the bowel, which usually lies in such immediate proximity to the sac as to be easily wounded. In the present case life might probably have been saved if the operation had been performed earlier; and whether the bowels act or not, the operation should be performed if the hernia cannot be reduced, if the pain continues, and if the patient gives other evidence of suffering and exhaustion. In a similar case in private, Mr Holt operated in three hours after the occurrence of the hernia, and the patient was saved. He therefore urged upon the students in all cases of large hernia of recent date to study more particularly the general condition of the patient, rather than rely upon a single action of the bowels; and in those cases where the protruded intestine cannot be returned, to relieve the stricture by operation without delay.

## MIDDLESEX HOSPITAL.

### A CASE OF ASCITES AND ANASARCA, WITH RENAL DERANGEMENT, IN A YOUNG PRIMIPARA; PREMATURE DELIVERY OF A DECOMPOSED CHILD OF ABOUT SIX MONTHS' GROWTH; RECOVERY.

(Under the care of Dr. HALL DAVIS.)

IN referring to the case related below, it was remarked by Dr. Hall Davis that the dropsy was a direct result of disorder of the function of the kidney, arising from a congested state of it. It was most probable that exposure to cold and checked perspiration had been the origin of it. The pressure of the gravid uterus, especially at the period of pregnancy reached, was not likely to have exerted, *per se*, much influence in producing the dropsy. The impoverished blood of the anæmic condition would, however, favor the transudation of serum into the cellular tissue. The treatment was in accordance with general principles. The anæmic condition was remedied by steel and a suitable diet. The dropsical accumulations were greatly lessened by exciting the kidneys to increased activity. A spontaneous diarrhœa assisted in favoring the absorption and removal of the dropsical fluid, which was further hastened by delivery. It may be observed that, had the normal utero-placental circulation been maintained to the end of pregnancy, the child developing healthily to full term, the dropsy and albuminuria however persisting, puerperal convulsions would have been a complication reasonably to have been expected on the advent of labor.

For the notes we are indebted to Mr. Osman Vincent, resident obstetric assistant.

J. L——, aged eighteen, anæmic-looking, under average stature, but otherwise well formed, now pregnant for the first time, was admitted on March 6th, 1868. On her admission ascites was discovered by distinct fluctuation. The abdominal walls, the labia pudendi, and the legs were found œdematous, pitting on pressure, the legs discharging at two or three points. The eyelids, face, and hands were somewhat œdematous. The heart-sounds were slightly rough at base; respiration normal; pulse weak, small, but regular; the urine very scanty, high-colored, specific gravity 1020, and containing two-thirds albumen. The breasts, which were moderately large, presented a dark areola. She had not menstruated for six months. The cervix uteri was cushiony, slightly shortened, and the body of the uterus enlarged. On auscultation the fœtal heart was detected beating feebly, 130 in the minute, the mother's pulse being at the same time 100. She was ordered a diuretic every four hours, three ounces of gin daily, and meat diet. The legs to be raised on an inclined plane. For the first week the urine could not be saved on account of diarrhœa, which came on at every attempt to pass urine. She had morning sickness, which was subdued by three grains of oxalate of cerium, taken before meals three times a day.

March 16th.—The œdema of the legs evidently less, but the girth at the calves is still thirteen inches. The diarrhœa has stopped; the sickness has not returned. There was some pain on percussion over the kidneys, and the urine passed in twenty-four hours (seventeen ounces and a half) was alkaline, specific gravity 1020, and contained about one-half albumen. Under the microscope some pus-cells and triple phosphates were discovered. The fœtal heart was heard feebly at, and about, the umbilicus. She was ordered steel wine twice a day, and a linseed and mustard poultice to the loins.

During the next ten days the quantity of urine passed averaged ten ounces in the twenty-four hours, and the œdema decreased. At the end of this time the legs had become reduced at the calves to a girth of 11¾ inches.

March 28th.—The vomiting began again, and was now only relieved by dilute hydrocyanic acid in effervescing salines. The fœtal heart could no longer be heard.

April 5th.—Four P. M.: The patient had a slight "show," and, on examination, the os uteri was found dilated to the size of half-a-crown, the membranes protruding, and the head presenting.

There were very slight pains, the pulse was 90, and the skin cool.—Five P.M.: The os was fully dilated. The membranes broke, and, after three pains, a dead female child was expelled, which was also dropsical. The placenta was diseased. No trouble was experienced from the œdematous labia. The child was of the ordinary size of between six and seven months' gestation.

Not a single bad symptom occurred after this. The catamenia reappeared in three weeks, and lasted three days, at which time there was no ascites, and no œdema of the abdomen or legs remaining. The average quantity of urine was now twenty ounces in the twenty-four hours, containing only a trace of albumen. After a course of tonics, containing steel and diuretics, she was—after eight weeks' stay in the hospital from the time of admission—discharged, convalescent, on the 1st of May.

### THE RELIEF OF PAIN IN OPEN CANCER.

The field for experience in cancer at this hospital is, as is well known, an unusually large one, and opportunity has therefore been afforded for testing fairly the action of remedies in affording relief in this distressing disease. We learn that the exquisite pain which belongs to open cancer is found to be best relieved by the stramonium ointment, which is employed at this institution. The following is the formula for this in the hospital pharmacopœia:—Half a pound of fresh stramonium leaves, and two pounds of lard. Mix the bruised leaves with the lard, and expose to a mild heat until the leaves become friable, then strain through lint. The ointment thus prepared is spread upon lint, and the dressing changed three times a day.

## ST. GEORGE'S HOSPITAL.

### ACUTE NECROSIS; REMOVAL OF DEAD BONE BY THE TREPHINE.

(Under the care of Mr. POLLOCK.)

One of those only too common cases, in which dead bone is shut up by new growth, and requires removal by the surgeon, was operated upon by Mr. Pollock on Thursday week. The patient was a lad who had suffered from acute necrosis of the lower part of the right tibia, in which position there were sinuses leading to dead portions of the shaft. Mr. Pollock opened these up, and, with the aid of the trephine, succeeded in removing two good-sized pieces of necrosed bone. Carbolic acid, liquefied by a gentle heat and very slightly diluted with water, was then thoroughly applied to the wound. Mr. Pollock pointed out that the left femur of the boy was very greatly enlarged, a similar attack of acute inflammation in that limb having led to very great thickening. He remarked that the case was one of those the pathology of which had been well described by Mr. T. Holmes in his work on Diseases of Children. In the present case the friends of the patient had described his disease as having followed an attack of fever; but he (Mr. Pollock) had no doubt that the febrile symptoms had not been specific, but symptomatic. There had been acute inflammation of periosteum and bone, which had given rise to the constitutional disturbance. He impressed upon the students the importance, in such cases, of early incisions into the inflamed tissue. After a few days of great pain and disturbance the use of the knife should not be delayed. Very possibly, on an incision being made, no pus would be found; but a very short time afterwards pus would flow, the incision allowing free space for its exit from between the periosteum and bone.

### TWO CASES OF NÆVI IN CHILDREN; APPLICATION OF THE ACTUAL CAUTERY.

(Under the care of Mr. T. HOLMES.)

The first of these cases was a little girl about two years old, who had a large nævus, shaped somewhat like an officer's epaulette, upon the left shoulder. It had already received treatment of two kinds. Nitric acid had been applied on the surface with the effect of obliterating to a great extent the cutaneous portion of the nævus. On two occasions Mr. Holmes had treated the subcutaneous portion by ligature, which had been very successful in remedying the deformity. There were still, however, a great many points at which the nævus tissue was still very evident, and these he had determined to treat by the actual cautery. For this purpose he employed the highly ingenious instrument invented by Mr. Wordsworth. As our readers may remember, this consists of a steel needle, which is expanded about half an inch from its point into a good-sized bulb. The instrument is brought to a white heat by means of the blow-pipe acting on the flame of a spirit-lamp. The effect of the bulb is to store up heat, so that the needle, which without this provision rapidly chills, is kept hot a sufficient period for it to be applied a dozen or more times to the tissue. In the present instance the utility of the instrument was well marked. The nævus was pierced in ten or twelve places without the necessity of fresh exposure to the flame. The second case was that of a young infant with a nævus on the face, near the outer angle of the right eye. On a previous occasion Mr. Holmes had treated this by the method recommended by Mr. Teale, of Leeds—viz., dissecting off flaps and enucleating the structure. The subcutaneous portion had been completely remedied by this treatment; but the nævus tissue had spread to a certain extent cutaneously. Wordsworth's cautery was applied to this in three or four places. Mr. Holmes remarked that the actual cautery by white-hot needles was a most valuable method of treating nævi on the face. No irritation or suppuration was set up, nor was there afterwards the disfigurement which is necessarily caused by nitric acid, which produces, as is well known, a mark of pock-like character. The ingenious cautery employed enables this method to be carried out without difficulty.

### LUXATION OF THE HEAD OF THE FEMUR UPON THE DORSUM ILII; REDUCTION BY MANIPULATION.

(Under the care of Mr. HOLMES.)

One night, a week or two since, a powerful man was brought into the hospital with what proved to be dislocation of the femur upon the dorsum ilii. Mr. Holmes chanced to be present, having been engaged in operating upon a case of strangulated hernia. He resolved to try to effect reduction by manipulation. The leg was first firmly flexed upon the thigh, the limb then abducted as widely as possible, and finally, by a little rotation, the head of the bone was easily manipulated into its position. No pulleys or extension of any kind was needed.

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## ROYAL HOSPITAL FOR SICK CHILDRER, EDINBURGH.

### CASE OF EMPYEMA; THORACENTESIS; RELIEF; SECOND OPERATION, AND INTRODUCTION OF DRAINAGE TUBE; RECOVERY.

(Under the care of Dr. Grainger Stewart.)

For the notes of the following case we are indebted to Dr. R. S. Turner.

Andrew R——, aged four years, admitted May 11th, 1867, with the following history. He had measles a short time before, and never properly recovered from the attack; he was getting very feeble, and had a troublesome cough, with expectoration and night-sweats. On admission the child was much emaciated, and in a very low state; the pulse small and frequent. Over the lower two-thirds of the right lung there was complete dulness, and the vesicular murmur was inaudible; while at the apex the percussion note was almost tympanitic, and the breath-sounds were exaggerated and harsh. Over the left lung there was coarse crepitation, with snoring sounds, but no dulness. He had no great difficulty of breathing. The bowels were regular; the urine was passed in normal quantity, though of high color and specific gravity. He was ordered wine, cod-liver oil, and iodide of iron. Under this treatment the condition of the left lung, and the patient's general health, improved, and the night-sweats disappeared; but the effusion on the right side went on increasing. Blisters were applied, but they had no effect in diminishing the dulness. About a month after admission it had so extended that no clear sound could be elicited over any part of the right lung; and, with the exception of a slight blowing over the root of the lung, no breath-sounds could be heard; the side, also, had begun to bulge. There being no prospect of getting rid of the effusion by any other means, thoracentesis was proposed, and on June 20th, ten ounces of pus were drawn of by an exhausting syringe. The patient bore the operation very well, and evidence of the expansion of the lung was afforded by diminished dulness at the apex, and the breath-sounds becoming faintly audible. Speedy reaccumulation took place, and in a few days the dulness became as marked as before, and the breath-sounds again became almost inaudible. About a week after the exploratory tapping (June 27th), forty ounces of pus were removed by means of a large trocar and canula. A piece of drainage tube was inserted through the canula, which was then withdrawn, and a large sponge was applied to keep the tube in position, and absorb the discharge. After the removal of the fluid, the side became slightly contracted, but the percussion note was much clearer, and the breath-sounds were quite audible. The little patient did very well after the operation; the discharge, at first profuse, soon diminished in quantity, and about ten days after the operation, while the sponges were being changed, the tube came out and was not returned.

On July 6th, the report was as follows: Patient has hardly any cough, and is gaining strength; comparative dulness is still perceptible at the apex of the right lung, less so at the base; while the intermediate part is completely resonant; breath-sounds perfectly distinct, though slightly harsh at the apex anteriorly.

July 31st.—Patient still continues to improve; he is gaining flesh, and the dulness over the affected side is gradually passing off.

In commenting on this case at the bedside, Dr. Grainger Stewart referred to the difficulty of determing the nature of the fluid in some case, pointing out that in this case there had been no rigor or other symptom indicating that suppuration had taken place. With regard to the grounds which justify the operation of thoracentesis, he remarked that he would operate without hesitation—first, in an acute case of pleurisy where dyspnœa is intense and increasing, and this notwithstanding the use of diuretics, absorbents, and counter-irritants; secondly, in chronic cases where effusion is slowly but steadily advancing, notwithstanding the use of remedies, or where it remains obstinately stationary; and, thirdly, in cases where there is reason to suspect empyema. This case was referable to the second class, and for that reason he first operated. The effusion being found purulent, and the lung having expanded readily, the second operation was obviously demanded. The cavity was emptied as perfectly as possible, and in order to keep it empty the drainage-tube was introduced. He expected that, the roughened pleural surfaces being brought together and kept in apposition, adhesion would take place, as ultimately proved to be the case. He also referred to the question of the existence of tubercular deposit, and showed that, even if that were present, the operation should be performed in such circumstances as those here existing.

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## LONDON HOSPITAL.

### THE TREATMENT OF TONGUE-TIE.

By Mr. C. F. Maunder.

The method which Mr. Maunder has been in the habit of employing to remedy this malformation is to tear or lacerate the membrane with the forefinger. The finger is, of course, introduced into the mouth to ascertain the existence of the deformity, and this is no sooner recognised than pressure directed downwards and backwards towards the floor of the mouth (the finger-nail resting on the frænum), tears the latter, and the objected is effected. This means, Mr. Maunder remarks, is very simple, can be carried out under the veil of making a digital examination, and as no surgical instrument is employed, is highly acceptable to mothers.

# Provincial Hospital Reports.

## CAMRBIDGESHIRE ASYLUM, FULBOURN.

### CASES OF EPILEPSY TERMINATING IN SUDDEN DEATH.

(Under the care of Dr. G. M. Bacon.)

Sudden death in epilepsy is not an unfrequent termination of this disease, and such cases are often the subject of inquest in asylums, where, indeed, we ought to look naturally for the last stage of such patients' career. Many of these deaths are due to accident—suffocation and the like; but a careful investigation sometimes unravels the mystery more satisfactorily, as in the following instances.

Case 1. *Epilepsy, followed by recurrent mania; sudden death in a fit.*—S. D——, aged sixty-two, a married woman, subject to epilepsy for some years, had got worse lately, and was admitted into the Cambridgeshire Asylum in 1866. Not much could be learned of her history, but it appeared that her mind had begun to suffer from long-continued epilepsy: that her memory was impaired; and that after an attack she was lost, and did not know what she did. She was also discontented, and of a querulous and irascible disposition.

In January, 1867, she had some severe fits, and showed fresh delusions: thought she stood in water, and was robbed of things she never had; and attacked the nurses under the influence of these ideas. This recurred every three or four weeks; and in April she had some severe fits, and was found dead, with signs of a recent fit. She was found lying on her side, with only one nostril compressed by the pillow, and the left arm hanging loosely by her side, about twenty minutes after death.

It was clear, from her position, that she had not died from suffocation in the pillow, as was conjectured at first; and the post-mortem showed the lungs to be very little congested, and emphysematous in patches. The aorta had patches of atheroma on it; the mitral valve had some rather large deposits; and the heart was fatty. Other organs healthy.

The patient was much exhausted on the morning of her death, and had taken very little nourishment, having some nausea. It seems, then, most likely, considering these circumstances, her age, and the condition of the heart, that she died directly from the effects of a strong convulsion on a body enfeebled both structurally and functionally.

Case 2. *Epilepsy; dementia; sudden death.*—S. M——, aged forty-one, single woman, had been epileptic for about twelve years, and her mind had become more and more affected till, in 1867, she was far gone in dementia, stubborn and helpless. Her fits had become more severe during the last year, and more than once the nurse had thought her dying after a fit, owing to the usual pallor and stupor. After lying in bed two days and having several fits, in December, 1867, she died, ten minutes after the night-nurse had left her. At the post-mortem the heart was found, on microscopical examination, in a state of fatty degeneration, and as there was nothing else in the organs to account for death, it seems fair to conclude that it was due to this cause.

Dr. Bacon thinks that this is probably the explanation of many cases, some of which are described as "paralysis of the heart," &c.

Case 3. *Epilepsy; death from coma after a succession of fits.*—F. S——, aged eighteen, a lad who had been subject to epilepsy for ten years, was admitted in 1866. He was robust-looking and healthy, but had frequent fits, and was stupid after them, and often inclined to violence. He remained much the same for four months, when he had, one night, about forty fits, and continued more or less convulsed for four days, and died comatose. There was no autopsy, but death was evidently due to the effects on the nervous system of the long-continued convulsions.

These three deaths would all be included under the general term of "epilepsy," but their pathology is very different; and we have thought it worth while to point this out in these examples, as such cases do not occur commonly in general hospitals and there is but little definite information available as to their termination.

## QUEEN'S HOSPITAL, BIRMINGHAM.

### CASE OF CEREBRAL RHEUMATISM; HIGH TEMPERATURE; COMA; DEATH; POST-MORTEM APPEARANCES.

(Under the care of Dr. Foster.)

For the report of the following case we are indebted to Dr. James Sawyer, resident physician:—

Rebecca E——, aged twenty-three, cook, was admitted into the hospital on the 26th of February, 1868. She stated that four days before admission her knees and ankles became painful. A day or two previously she was exposed to cold, but did not get wet; and to this exposure she attributed her illness. Other joints soon were implicated. She had never had rheumatic fever before; and there was no family history of rheumatism. On admission her face was flushed, and her skin was hot and freely perspiring. She was a well-built and well-nourished woman, but of a nervous and excitable temperament. The tongue was covered with a thick, white creamy fur. All the large joints, together with the joints of the fingers, were red, hot, swollen, and intensely tender and painful. The heart's action was regular, percussion showed the cardiac dulness to be normal in extent, and no murmur was present. The respiratory sounds were healthy. The temperature in the axilla was 103 2–5°; pulse 126; respirations 26. The joints were wrapped in cotton-wool. She was ordered to take a mixture containing fifteen grains of bicarbonate of potash every four hours, together with ten grains of Dover's powder at bedtime. At night the temperature was 103 4–5°; the pulse 126; and the respirations were 36.

Feb. 27th.—During the past twenty-four houre she had voided thirty-six ounces of urine, and thd bowels had been open three times. The urine had a strong acid reaction, sp. gr. 1040, and was loades with urates, but contained no albumen. In the morning the temperature was 104 2–5°; pulse 120; respirations, 32; while the evening obser vations gave temperature 104 3–5°, pulse 110, and respirations 35. The general condition had undergone but slight alteration.

28th.—Thirty-six ounces of acid urine, sp. gr. 1034, were excreted during the preceding twenty-four hours; the bowels acting freely. In the morning the temperatuae was 104 3–5°, pulse 120, respirations 29. A very feeble pericardial sound could be detected, and a little tightness of the chest was complained of. Poultices of linseed meal were applied to the chest. The temperature of the evening was 105 3–5°, the pulse was 120, and the respirations were 26.

29th.—The patient's general condition was worse. She was depressed, and haunted by the idea of approaching dissolution. She wandered a little. Forty ounces of urine were voided during the past day and night. This had a specific gravity of 1034, and was *faintly alkaline* in its reaction. The temperature was 106 3–5°, the pulse 128, and the respirations 30. In the evening the wandering was still present, and the observations gave temperature 105°, pulse 126, and respirations 29. Taking milk and beef-tea pretty freely. No sickness; tongue rather drier.

March 1st.—In the morning the temperature was 105 3–5°, the pulse 120, and the respirations 32. She had had a bad night, but was quieter in the morning. Thirty-two ounces of urine, of specific gravity 1033, and having a faintly alkaline reaction, had been voided during the past twenty-four hours. During the preceding day and night the bowels had not been opened. The joints were still hot, red, swollen, and painful. She was ordered to continue the medicine, ice was applied to the head, and a saline purge was given. There was no vomiting. Tongue brownish. Towards evening she became restless, and there were marked delusions of the senses. The evening observations gave a temperature of 105 4–5°; the pulse was 138, quicker than it had ever been before; and the respirations 30. Her condition gradually became worse: the delirium became fiercer; she tore her hair; her face was flushed, eyes suffused, tongue brown and dry; sordes on teeth; and fæces and urine were passed involuntarily. Towards midnight she had twitchings of the limbs; coma supervened; and she died rather suddenly at 2 A.M.

*Autopsy, thirty eight hours after death*,—The parietal and visceral layers of the pericardium were hyperæmic. Over the apex of the heart there were some lymphy encrustations. There were a few purpuric spots on the parietal pericardium. The valves of the heart, as well as the great vessels, were healthy. Both lungs were bound to the parietal pleuræ by slender and lengthened but apparently old adhesions. The lungs were healthy; hypostatic congestion was well marked. The vessels of the meninges of the brain were gorged with blood. There was a subarachnoid collection of opalescent fluid covering the surface of the cerebral hemispheres. Lymph in spots was also observed. The puncta cruenta were numerous and abnormally distinct. There was no preternatural collection of fluid in the ventricles of the brain. The walls of the fourth ventricle were congested. The other viscera were examined, and found healthy.

# Editorial.

## NATURE OF TUBERCULOSIS.

THE subject of Tuberculosis, which has so long occupied the attention of the French Academy of Medicine, may be said to be now virtually closed by the reply of M. Colin. It will be in the memory of our readers that the commencement of this important and protracted discussion was in a memoir by M. Villemin "On the Cause and Nature of Tuberculosis, and the practicability of inoculating the rabbit with the tuberculous matter of the human subject," which was presented to the Academy by M. Claude Bernard on the 4th December, 1865. In this memoir M. Villemin contended that tuberculosis is a specific and virulent disease, caused by an agent of an inoculable nature; and that, in fact it may legitimately be classed with syphilis and with glanders. From the date of this paper to the present time the entire subject of tuberculosis has been under discussion, and not only have M. Villemin's *facts* been tested by numerous well-devised and variously modified experiments, but nearly all the most distinguished Professors of Medicine in France have expressed their opinion upon it, either from a pathological or from a clinical point of view. On perusing the numerous and evidently carefully prepared orations that have been delivered on this subject, the first point that strikes the unprejudiced observer, and which is probably at the root of the singular discrepancy of opinion that has been expressed, is the uncertainty that exists in regard to the precise characters that belong to the disease we call tubercle. Though the broad features of the affection are clearly marked, and most practical pathologists would agree in recognising any given specimen and refering it to a particular stage of tubercular disease—as the miliary, the cheesy, or cretaceous period,—yet there is by no means a similar concordance of opinion as to the microscopical features, especially of the earlier stages of the disease, when it is difficult to detect and examine. Accordingly we find some authors, with M. Lebert, maintaining that tubercle proper is characterised by the presence of large numbers of corpuscles, having a diameter of from one-half to two-thirds of a millimetre, which are neither cells nor nuclei, but possibly more or less modified pus-corpuscles. Others again, as Virchow and Hérald, describe as the distinctive elements of the grey granulation minute cellular elements, the diameter of which does not exceed six-one-thousandth of a millimetre, united together and surrounded by an amorphous, granular, or finely-fibrillated blastema. The origin of these cells, which have a strong tendency to fatty degeneration, is attributed by Virchow to a hyperplasia of the corpuscles of the connective tissue; and he maintains that successive zones may be observed around any small tuberculous mass undergoing softening, of which the outermost consist only of connective-tissue corpuscles increased in number and size, the intermediate zone of similar corpuscles, compressed together in great numbers, with divided nuclei, and the central portion of corpuscles which are undergoing fatty degeneration. Robin, again, the most expert micrographer of Paris, regards the proper tubercular mass as composed of nuclei. Thus, even if we admit the morphological elements to be those in which the chief characteristics of tubercle reside, we find great difference of opinion amongst those who are best qualified to judge; whilst no light whatever has been thrown on the nature of the fluid parts of the mass, by which it is quite as reasonable to suppose its active or virulent properties, admitting it to possess any, are possessed. It is at least obvious that, with such variation of opinion on matters of fact, no positive conclusions can as yet be drawn in regard to the specific nature of tubercle. And it is not surprising that, looking at it from a purely microscopical point of view, many intrinsically different conditions have been classed together under that head. The correctness of the view which regards tubercle as really a specific disease, receives, we think sufficient support and evidence from the peculiarities of its clinical history. And we do not, therefore, feel justified in admitting that those lesions which are induced by inoculation with peritonitic pus, by injection of fat into the veins, as in the experiments of Béhier, or by the subcutaneous insertion of living strongyli, as in those of M. Colin, are really examples and instances of true tubercular disease. No doubt, if the effects are really identical, if it be impossible to distinguish between the products engendered by inoculation with peritonitic pus and true tuberculous matter, then is tubercle no specific disease; and we can only regard it as a form of inflammation presenting some peculiar features—a view to which, as we have already said, on clinical grounds, a strong objection may be raised. On the other hand, if we admit tubercle to be a specific disease, the effects of its inoculation cannot be identical with those produced by inoculation with various foreign bodies; and hence, if we are unable to distinguish the difference in each instance, it can only be attributed to the imperfection of our observation or of the means at our disposal, and we are not in a position to state with confidence what is or what is not a tubercular mass, and, consequently, have no right to diagnose a given deposit observed after the inoculation of tubercular matter to be really of the nature of tubercle.

A sort of intermediate view has been propounded, as will be immediately seen, by M. Colin, who attempts to show that when tuberculous matter is inserted into the skin, a certain amount of inflammation is established in the parts surrounding the wound, resulting in the development of pus-corpuscles, which, together with particles of tubercle still retaining their vitality, are taken up by the lymphatics and carried to the glands. Here they are for a time arrested; but finding abundant pabulum, increase and multiply, till at length they are conveyed onwards, and ultimately reach the lungs. Their arrival here excites irritation in the pulmonary tissue, which is rendered evident by the minute spots of inflammation that precede the outbreak of the tubercular affection. After a while the nodules soften in the centre, and become cheesy tubercle. In tubercle of spontaneous origin the only difference is that the foreign element is supplied by the diathesis at the expense of the lymphatic fluids. We have no space to enter into further details, except to remark that in some instances the entrance of the foreign material into the body is prevented by a process of encysting, in which case no symptoms of disease are observable; whilst in others, after the general features of tuberculisation have made their appearance the animals have regained their *embonpoint*, and have apparently recovered from the effects of the induced disease.

Whatever may be the future verdict of the profession on the point, it will be interesting to our readers to hear the following *résumé* by M. Colin, who, as reporter on M. Villemin's paper, has taken, so active a part in the progress of the discussion. M. Colin observes—1. That the fact of the inoculability of tubercle is certainly proved. 2. That in all probability the deposits occurring in the lungs, liver, intestines, and other parts have a double origin—proceeding partly from the tubercle deposited under the skin, and partly from the processes attended with the formation of pus around the wound; so that in most cases of inoculation there is at once absorption of purulent and of tuberculous matter. 3. The degree and amount of the results of inoculation are proportionate to the quantity of tuberculous matter inserted, and to the intensity of the surrounding inflammation excited, as is best shown in small animals. 4. The tuberculous matter is itself absorbed, and not any supposed virulent material, the absorption being chiefly effected by the lymphatics, through which it is slowly transmitted, and is ultimately deposited in the lung and elsewhere. 5. The pulmonary deposits which result from the inoculation of tubercle are truly tubercular, and occasion no doubt as to their nature when seen as firm semitransparent granulations. Their nature is, however, less certain when they have become opaque, yellowish, or whitish, in consequence of degeneration or purulent resorption. Insoluble and finely divided foreign bodies when injected into the veins and conveyed to the lungs, do not produce the same effects as tubercle; they occasion embolia without manifest irritation at their periphery, or they become encysted in the centre of minute islets of pneumonic or inflamed lung. It will thus be seen that, especially in the last conclusion, M. Colin's opinion coincides very nearly with those we have consistently expressed; whilst we are led to doubt his first proposition, partly from the great similarity of the appearances presented when various forms of foreign material are inserted under the skin to true tubercle, rendering it impossible to say whether the phenomena observed do not proceed from the absorption of the pus produced by the injury itself; and partly also from the very strong contrary evidence that is derived from the clinical history of the disease. In that history we possess what is to our minds overwhelming evidence of the specific nature of the disease; whilst the experiments before us fail to convince us either of the existence of a distinct virus or of the inoculability of tubercle as differing from that of any other organic substance containing nuclei and cells.

## SPECIALISM.

WHATEVER advantages may have been derived from the division of labor in our profession, and they are neither few nor unimportant, it must be admitted that such division has not been without its evil results. This has been eminently the case when specialism has been carried beyond its legitimate bounds. There are undoubtedly certain diseases which may be treated as "specialties," under proper limitations; but there are others which are not to be so regarded, and in making them "special" great injury is inflicted on the progress of medical science. The tendency of the present day is not to regard the human body in its entirety, with a nervous and circulating system influencing the whole machine, and modifying local disorders and diseases. In this respect specialism is taking a retrograde movement, and attempting a task to which all the principles of physiology and pathology are opposed. The work which stamped the fame of Abernethy as a great physician-surgeon, "The Constitutional Origin and Treatment of Local Diseases," struck at the very foundation of the special quackeries of his day, and proved that the most successful practitioner was he who took a comprehensive view of disease, and did not limit his observation and treatment to the mere local symptoms which presented themselves. The men who have conferred the greatest honor on their profession and the greatest benefit on mankind have certainly not been specialists. It is true that the names of Astley Cooper, Brodie, Lawrence, Liston, and Tyrrell, and a host of other "demigods of fame," are associated with great works on special subjects; but their authors would have repudiated the title of "specialist" as derogatory to their characters and calling as practitioners of surgery in its entirety. If Cooper's name is identified more particularly with his work on Hernia, it is much more revered as associated with the title of "prince of surgeons," one capable of treating ably and successfully all surgical diseases which presented themselves to his notice. Brodie wrote the most practical and scientific work on Diseases of Joints in our own or any other language, but he would have regarded as an insult any insinuation that he was a "joint doctor." Lawrence and Tyrrel gave us the best works on opthalmic diseases, but each would have spurned the title of "oculist" if it had been applied to him. Liston, the lithotomist, was unequalled in skill and success; but would he have associated himself with an hospital for stone? Now, however, men infinitely inferior to these "great lights," arrogate to themselves superior powers in the treatment of certain diseases, and parade their claims to superiority in a most offensive and unjustifiable manner. We have no desire to select any particular instance of this assumption of superiority, except as an illustration bearing upon the question, and as demonstrating the folly and evil of the system of "specialties."

We have lately seen in the columns of the newspapers a certain "Hospital for Diseases of the Throat" advertised and lauded in a strain which really calls a blush upon the cheek of those who have the honor and welfare of their profession at heart. We do not wish to criticise with undue severity the statements which have been made public with respect to this hospital. Admitting that the "statistics" and "cures," as stated, are correct, surely this is no argument in favor of a special institution for the cure of throat diseases, as there can be no doubt that treatment would have been as successful had the cases been under the care of "ordinary" practitioners. But we object to displays such as that we have alluded to, because they tend to lower the position and capabilities of surgeons in general in the eyes of the public. Is it to be tolerated for a moment that the stigma should be cast upon the surgeons of our great hospitals and those in general practice, that they are incapable of treating diseases of the throat as ably and successfully as the surgeons to the "hospital" in Golden-square? Yet if the late manifestos emanating from this institution mean anything they mean that. If they do not say so directly, they do so by implication. This, we think, is a very serious evil, and one the existence of which every right minded-member of our profession must deplore. In the name of the public and the profession we protest against such an assumption. Drs. Patrick Fraser and Morell Mackenzie are physicians to the London Hospital as well as to the "little place" in Golden-square. Do they mean to assert that their colleagues in the former institution, and the surgeons in the other great metropolitan hospitals, are not as able as themselves to treat throat diseases? If not, where is the necessity of a special "hospital" for the treatment of these cases? It is useless to argue the matter. Everyone knows that throat diseases can be as successfully treated elsewhere as at the special "hospital" in question; and it would be a libel on the surgeons of this kingdom to assert the contrary. Institutions such as the Throat "Hospital" owe much of their "fame" to the names which are associated with them as "consulting physicians and surgeons." The gentleman so styled, are, no doubt, actuated by kindly motives in lending their *prestige* to these places; but have they reflected on the effect of their benevolence? Sir Wm. Jenner is consulting physician, and Sir Wm. Fergusson consulting surgeon, to the Hospital for Diseases of the Throat. By their connexion with it, do they imply that such diseases cannot be treated as skillfully and successfully in the hospitals with which they are so honorably and usefully attached? Do they imply that the great body of surgeons, whom they have helped to educate, are incapable of performing those duties in a series of cases of every-day occurrence? The profession look to Sir Wm. Jenner and Sir W. Fergusson for an answer. They, and such as they, are the ornaments of our profession; and we expect them to uphold its dignity and usefulness, and to remove from the great body of surgeons in general practice in this kingdom a stigma which the maintenance of special hospitals has a tendency to fix upon them.

## THE DEPRESSOR NERVE.

THE observations of MM. Cyon and Ludwig, involving as they do the discovery of a physiological fact of great interest, deserve more than a passing notice. These observers believe they have established, on an experimental and sure basis, that one of the cardiac branches of the pneumogastric contains fibres which possess the remarkable power of effecting dilatation of the vessels, and of coincidently diminishing the frequency of the beats of the heart. They propose to call it the *depressor* nerve. A double interest is attached to this, since, if correct, it adds another instance to those already known of inhibitory nervous action, whilst it is opposed to the general proposition laid down by Marey, that the heart beats more frequently in proportion to the diminution of the resistance offered to the discharge of its contents.

The nerve in question springs, in the habit, either from the superior laryngeal alone, or from that nerve and the pneumogastric trunk, applies itself to the carotid artery, and runs down close by, but quite distinct from, the sympathetic nerve. It terminates by uniting with branches of the ganglion stellatum, and forming a plexus between the aorta and pulmonary arteries.

The first experiment made on this little nerve consisted in dividing it, and exciting the lower cut surface tetanically by an interrupted current. The result was *nil*. On applying the same irritation to the upper cut surface it was immediately observed that the pressure of the blood in the vessels began to diminish, ultimately reaching the half, or even one-third, of the original amount, and this not only in the carotid, but also in the crural arteries—an effect that was visibly owing to a diminution in the calibre of the aorta. Coincidently with the diminution of the blood-pressure, the frequency of the beats of the heart was observed to diminish, and this occurred even when a large portion of the trunk of the pneumogastric below the point where the superior laryngeal is given off was excised. The retardation was most remarkable at the commencement of the experiment. If the experiment was prolonged whilst the pressure continued to be diminished, the frequency of the heart's action generally regained its normal standard, showing that there was no direct connexion between the two. It was further shown that the depressor nerve did not act by diminishing the *force* of the cardiac beats, and thus leading to a diminution of the pressure in the vessels; since on dividing the pneumogastric, and excising the upper portion of the sympathetic in the dorsal region and the ganglion stellatum, with all its branches, irritation of the centric cut surface of the depressor nerve was still followed by diminished pressure in the vessels. And hence, as all reflex paths by which it might have acted on the heart had been removed, the only explanation that remains is that it acts by diminishing the resistances to the onward passages of the blood. MM. Cyon and Ludwig at once set to work to determine the correctness of this opinion; and, remembering the influence stated to be exerted on the vessels by the splanchnics, they instituted some experiments on these nerves. They found that section of the splanchnics effected a marked lowering of the pressure in the vessels, whilst irritation of the peripheric cut extremity was speedily followed by exaltation of the pressure. Irritation of the centric extremity was not followed by any observed result. On thinking over these results, it struck them that the depressor nerve might act reflectorily on the vessels through the splanchnics; and the experiment suggested itself of dividing the splanchnics, when, if their view was correct, irritation of the depressor should be of none effect. Moreover, it was already known that compression of the aorta was followed by exaltation of the pressure; and it was therefore natural to expect that, if compression were made, irritation of the depressor should again be followed by very slight, if any, result. Both experiments turned out as they expected. They therefore believe they have firmly established the fact that the small nervous twig, with the above-mentioned relations, possesses the power of reflectorially diminishing the tone of the vessels, and is to be classed as one of the most striking instances of inhibitory action, other examples of which are found in the influence of the vagus in arresting the action of the heart, of the chorda tympani on the vessels of the glandula submaxillaris, and of the nervi erigentes on the male sexual organs.

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## THE NEW NOMENCLATURE OF DISEASES.

We are glad to report that the new nomenclature of diseases proposed for universal adoption by the College of Physicians is now completed, and ready for general circulation. On a former occasion we stated that the object sought to be attained was the establishment of a uniform standard of comparison for statistical facts, collected not only in our country, but various parts of the world, and thus the more readily to aid in the discovery of causes of disease through a common understanding as to what each observer signifies and to what he refers in the use of particular names or terms—to ensure, in truth, a complete agreement in the comparison of diseases, and so the more correctly to estimate the influence of varying condition of climate, age, sex, and the like. In the nomenclature the English names are ranged in parallel columns with the Latin equivalents and corresponding terms in three modern languages. The definitions of diseases are framed solely for the purpose of identification, and not as explanatory of the phenomena of diseases. The various maladies to which the body is subject are divided into general and local, and in using the nomenclature we first turn to the index, which is most copious, occupying no less than eighty pages, and the preparation of which must have entailed immense labor. This duty, together with that of secretary, devolved upon Dr. Sibson, and his services in the matter call for special recognition and commendation. Well, in the index we find names in Egyptian type, Roman capitals, and italics; the latter are synonyms, which are not to be employed in registration, but a special number refers to the place where the correct name to be used will be found; the Roman type is for the Latin names proper, but those for common use are in Egyptian type. Against each name to be used in registering disease a number is placed, indicating the page where disease in its legitimate position in regard to others, and its definition when thought necessary, are to be met with; and, if the number is without brackets, the exact head under which the disease is to be registered. In the body of the work it is directed that local manifestations of general diseases are to be returned amongst general diseases. When it is necessary to specify any variety of disease, it is to be indicated by being indented. A uniform plan has been devised for arranging various forms of local diseases under the heads of the different organs attacked, and particular attention is called thereto. It will be found at pages 29 and 30 of the Nomenclature Report, and should be consulted carefully as the key to the registration of all local diseases.

It is to be hoped that no delay will prevent the immediate introduction of the new nomenclature into general use. It has the sanction, and indeed its formation has been assisted by the active co-operation, of the registration bodies, the medical departments of the Privy Council and of the army and navy, and the leading licensing bodies. Dr. Farr especially has taken an active part in the matter; and Dr. Logan, it will be remembered, has already directed that the new nomenclature should be used after the 1st of January next; also, it is believed that speedily a large number of copies will be distributed to the registrars throughout the kingdom from the central offices, and to the medical officers of the army and navy. We urge upon the profession generally the importance of taking this nomenclature as their future guide in all certificates of death which they are called upon to give; so will they materially aid in paving the way for generalisations as to the prevalence, march, and etiology of diseases in general amongst the scattered masses of mankind —of prime moment in relation to the preventive efficacy of sanitary legislation and to the advance of scientific medicine.

# Reviews and Notices of Books.

*The Principles and Practice of Obstetrics.* By GUNNING S. BEDFORD, A.M., M.D., Professor of Obstetrics in the University of New York, &c. Fourth Edition, carefully revised throughout, and enlarged. 8vo, pp. 763. New York: Wood and Co. 1868.

It is generally said that when a book has reached a fourth edition the labor of subjecting it to criticism is unnecessary. And so it may be if the office of the critic is merely to repeat some commonplace formula as to the value of the work. But in a progressive science like medicine a really new edition of a work has just claims to be fully noticed, if only to show whether the author has or has not kept pace with the advance of knowledge, and whether he has succeeded in bringing his teachings up to the highest and latest standard.

When we speak of a really new edition of a book, we do not allude to such a reissue as Dr. Gunning Bedford's. For a comparison of the present edition of this work with the preceding one shows clearly that the letterpress has been stereotyped; and so, probably, as so many hundred copies become exhausted we shall have a new edition. Not but that there are some additions to this fourth edition, but certainly not what we should have expected from the preface. That there may be no mistake, we will give this verbatim; reminding the reader that on the title-page is this statement, "Fourth edition, carefully revised throughout, and enlarged." The preface to this edition, dated January 1st, 1868, runs thus:—

> "The present edition of the 'Principles and Practice of Obstetrics' has been thoroughly revised, and some important additions made, which, I trust, will not be unacceptable to the reader. Besides alluding more particulary than I had previously done to the interesting subjects of Anæsthetics and Twin-pregnancy, I have devoted an entire lecture to the complications of Pregnancy, in which are discussed various topics of importance—such, for example, as Chorea, Paralysis, Jaundice, &c.,—which cannot, I think, fail to elicit the attention of the obstetric student."

To enable our readers to judge for themselves the meaning of such expressions as "thoroughly revised," "important additions," &c., we will just say what has been done. Up to the end of p. 445 every line—every word—is the same, and in the same position on the page as in the third edition. At the end of p. 445 nearly two pages of matter, from the writings of Dr. Matthews Duncan and Dr. Mitchell on twin pregnancies, are given; together with a note from one of Dr. Bedford's old pupils on a case of quadruplets. To make the paging right, the numbers on pp. 446 and 447 have to be repeated, appearing the second time with a star to each. We then go on without any alteration whatever to p. 727. Having had some experience of Dr. Bedford's writings, we recollect being rather nauseated on three previous occasions by the account of a young woman with an obstruction. The band causing this was divided by the doctor, so that the menses came away freely; "and the young lady was soon repaid for her fortitude by taking to her bosom her affianced lover." In the previous editions the volume has ended with this peroration. Now we fortunately find rather more than a page of new matter as to the effect of anæsthetics on the perineum during labour—not on this lady's perineum in particular, but on the structure generally. After this comes an additional lecture—one not before published—on chorea and paralysis and jaundice as complications of pregnancy; a lecture by-the-by compiled from the writings of others.

There are several reasons why the manufacture of new editions after this fashion should be strongly condemned. In the first place, there is a degree of pretence and equivocation about the proceedings which is very offensive. Secondly, a student naturally expects the book he purchases to be complete up to the time of publication, especially when he sees on the title-page "carefully revised throughout." He thinks the volume will contain the author's matured views; and it is hoped that questions which were doubtful a few years previously have been solved. With these expectations many men will part with the first edition of a book for one-tenth or one-twelfth of its cost, so that they may procure what it is hoped will be the latest information. Thirdly, it is not unreasonable to suppose that an author, in quoting from others, will take care to give the latest opinions of those he refers to. If he does not, of course he can only reproduce the views which had been published up to his first issue. In the present case this was in 1861; so that his volume is seven years behind the time, the legitimate new editions of various treatises being necessarily unnoticed. And, lastly, theories, which appeared tenable in 1861 have become disproved in 1868. For example, in the former year Dr. Bedford might reasonably pin his faith to the opinion of Frerichs that urea becomes poisonous when it accumulates in the system owing to its conversion into carbonate of ammonia. But in 1868 even Dr. Bedford cannot believe in this unfortunate hypothesis, though he makes it appear that he does so. It is, perhaps hardly necessary to say, that a writer who determines to have his pages stereotyped should compose carefully. In 1861 he may speak of "recently published" in alluding to a book of 1858; or of "a late writer," when referring to an author of 1855. But surely such expressions are out of date seven years subsequently. In 1861 Dr. Bedford speaks of his "visit to London some five years since;" and he employs the same phrase in 1868. Does this gentleman favor us with his company every five years?

In conclusion, we would advise Dr. Bedford, when he next issues a new edition, to take care that he does so fairly, and not to allow statements to be made on the title-page which are deceptive. In fact, such editions as those of Dr. Bedford's are nothing more than reissues, with trifling additions and fresh title pages. If Dr. Bedford will really give us a new edition, and will take such pains about it as his readers have a right to expect, we shall probably have reason to be grateful. For it will be impossible for him to go calmly through his work without seeing that his matter may be very greatly compressed with advantage; that much tall talk and fustian ought, on the score of good taste, to be omitted; and that obsolete theories must be expunged with a merciless hand.

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*A Practical Treatise on Surgical Apparatus, Appliances, and Elementary Operations; embracing Bandaging, Minor Surgery, Orthopraxy, &c.* By Philip S. Wales, M.D., U.S.A. Philadelphia: Henry C. Lea. 1867.

It appears to us, as far as we can judge, that the writer has fairly succeeded in carrying out his design of compiling a good book on mechanical therapeutics, such as might be useful to students and practitioners of medicine by affording them a systematised and concise description of all the appliances used in modern surgery, elementary operations, and so forth. In the preparation of the volume the author says he had in view its adaptation to the requirements of those entering the public services. The book is profusely illustrated by woodcuts. To judge by the number of mechanical resources at the surgeon's command at the present day, he ought to be armed and prepared against accidents of all kinds. Fortunately, we may hope, for patients, but unfortunately for the author, the number of new appliances is ever on the increase. All the well-known modern surgical works have been laid under contribution, as the writer fully acknowledges in his preface.

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# Correspondence.

"Audi alteram partem."

## SNAKE-POISON.

*To the Editor of* The Lancet.

Sir,—May I ask space for a few brief remarks relative to the recent death of Mr. Drummond, at Melbourne, from the bite of a tiger-snake, as recorded in *The Times* of the 16th July.

The fatal result (so far as could be ascertained from post-mortem examination) appears to have been almost mainly due to poisoning of the blood, a changed appearance of the corpuscles under the microscope (if the report be complete) being the only visible result detected in the case by my friend and former colleague, Professor Halford. No signs of visceral lesion were discovered. This quite accords with what I have advanced as to the cause of death in an "Essay upon the Poison of the Cobra di Capello," published in 1852. Basing treatment upon such supposed changes in the blood, transfusion in similar cases was therein advocated.

The recent and most important experiments (second series), communicated to the Institute of France, by Eulenberg and Landois, as to the effect of transfusion of blood in animals poisoned by agents either in the gaseous or solid form, are very strongly corroborative of the value of the method suggested. Indeed, at present, no other means would seem to offer, in really urgent cases, a fairer chance of success. I venture to express a hope now that some of the poison will be forwarded to Dr. Tilbury Fox, that the plan may be submitted to the test of experiment, *in vili corpore.*

Another most interesting point in the pathology of serpent-poison respects the protective power seemingly acquired by the system against its further action by frequent repetition of the bite. Dr. Halford supposes that the system thus becomes hardened against the effect of the venom. The question, however, obtrudes as to the manner in which the original protection was acquired. Here the risk to life would obviously much depend upon the amount and intensity of the venom introduced, the locality of the wound, idiosyncrasy of the subject, &c.

May it not be possible, as hinted in the essay alluded to, that when recovery has actually occurred in any given case, the virus may have so modified the organism that, like to that of some eruptive and other fevers, it confers comparative immunity against subsequent attacks?

Finally, with regard to the correlation of serpent-poison to that of some forms of tropical fever. That such correlation does exist between serpent-poison and yellow fever would seem probable from the experiments recorded in the remarkable memoir of De Humboldt, laid before the Royal Academy of Medical Sciences of Havanna in 1852–3.

The inoculation of individuals upon an immense scale at Vera Cruz, New Orleans, and Cuba, with serpent-poison largely diluted was confidently affirmed to afford protection against an attack of yellow fever.

Although the statement of De Humboldt has been since called in question to some extent, there yet remain strong grounds for further experiment in this direction.

I am, Sir, your obedient servant,

John Cockle, M.D.

Brook-street, London, July 21st, 1868.

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*To the Editor of* The Lancet.

Sir,—In *The Times* of Friday 16th July, there is an interesting account from Melbourne, Australia, of the death of a respected magistrate of that town from the bite of a tiger-snake. A showman was exhibiting venomous snakes of this description, pretending at the same time that he had a remedy for their bite, which he sold. To prove the asserted fact, he was in the habit of allowing himself to be bitten, and then applying his remedy without evil consequences. Mr. Drummond declared the snakes were harmless, that the whole business was an imposture, and insisted on being bitten himself to prove his assertion. Although the showman was very averse to the experiment, Mr. Drummond was bitten above the wrist. The usual symptoms of snake-poisoning came on, and notwithstanding the remedy, he died the next day.

The important medical or physiological feature in this case is the undeniable fact that the showman was in the habit of exposing himself to the bites of the same snakes without suffering to any perceptible extent; in other words, that he was proof against the animal poison of the snake.

I believe this fact corroborates an opinion which I have long held, that there are many animal poisons, besides the pathological ones of small-pox, measles, &c., which have the power of so modifying the animal economy, if it does not succumb to their influence, as to render it subsequently all but proof against them This fact I may illustrate by the mosquito, whose attacks I witness every autumn on the Genoese Riviera. Most newcomers, fresh from northern countries, are terribly punished on their arrival in the south of Europe, as also in all warm climates; and when these same persons return to the South a second and third winter, they are still bitten, but the poison produces scarcely any pain or swelling, as is the case with the natives of the district. In tropical climates it is generally considered, I believe, that the skin gradually becomes less freely supplied with blood, under the influence of continued heat, and less liable to inflame under the influence of the poison. But, in my opinion, the real cause of this comparative immunity is that the entire economy has been inoculated with the poison, and is henceforth less liable to its action.

A friend of mine, Colonel Meadows Taylor, tells me that he has known in India snake-charmers and others who could bear the bite of the cobra di capello, a most venomous snake, with perfect immunity. Probably, having escaped death the first time they were bitten, the inoculation rendered them proof against the poison afterwards. These facts certainly open the field to much speculation with regard to the influence of the inoculation of animal poisons generally on the human economy.

I am, Sir, your obedient servant,
J. Henry Bennet, M.D.
Grosvenor-street, July, 1868.

## CASE OF SUICIDE BY CARBOLIC ACID.

*To the Editor of* The Lancet.

Sir,—As I believe the following case to be unique, and that it will prove interesting to many of your readers, I should feel obliged by your giving it publicity.

On July 15th, at 11 a.m., M.E——, a married woman, aged forty-three, was admitted into the Birkenhead Borough Hospital, suffering from the effects of poisoning by crude carbolic acid, taken an hour previously with a suicidal intent. She was insensible, retching, the breathing stertorous, the pupils much contracted, and the pulse intermittent. There was a strong smell of the acid from her breath, and on opening the mouth the tongue and fauces present a white, corroded appearance. I was informed that, before being brought to the hospital, chalk had been administered. I immediately injected several ounces of olive oil by means of the stomach pump, and subsequently an emetic. Death ensued about noon.

*Autopsy, two hours after death.*—On opening the body, there was a strong smell of carbolic acid. The œsophagus, dark-grey in color, was singularly harsh to the tough, the inner coat tearing readily, and friable. The stomach, having been ligatured and removed, was found to contain seven ounces of brown flocculent fluid; the mucous membrane, for the entire extent, was grey, corroded, and easily rubbed off, being coated all over with so-called "Lister's carbolic putty," a combination of the poison with the chalk and oil which had been given. The duodenum presented a curious gradation of color, from dark-grey at the pyloric end, lapsing into the bright-red appearance of inflamed mucous membrane. The jejunum was congested for about two feet, the remaining portion of the gut being healthy, as were the other viscera, abdominal and thoracic. The brain was slightly congested, and smelt almost as strongly of the acid as the other organs. I may add that the blood was incoagulable; an ounce which I retained is now, five days after death, in a fluid state.

I am, Sir, your obedient servant,
Geo. Wm. Harrison, M.R.C.S., &c.,
The Borough Hospital. Birkenhead, House-surgeon.
July 28th, 1868.

# News Items, Medical Facts, &c.

Columbus's Egg.—M. Groussin mentions a fact of some interest in the *Tribune Médicale* of July 12th, to show how much simple means, untried before, may accomplish when all other measures have failed. A boy about nine years old had forced a steel ring on one of his fingers; all attempts at removal by filing, cutting, &c., having failed, in a village near Paris, the medical man advised the mother to go the next day to town, and apply at the Hôtel Dieu. The surgeon endeavored to cut the ring in various ways, but the œdema was so great that he failed, and amputation of the finger was proposed. The mother left the place, and met a surgical instrument maker in the hall. The latter, having heard the nature of the case, asked her to come to his shop, where he placed the ring in a vice and broke it. Our first idea in these accidents is cutting and filing, but it is plain that well-regulated compression is more expeditious and effectual.

Somnambulism.—The "Revue de Saint-Pons" (Hérault) states that a few nights back a pupil in the training school for young priests in that town rose from his bed while all his comrades in the dormitory were asleep, and in a state of somnambulism made an attack on the guardian of the apartment. The latter was awakened by feeling a hand on his shoulder, and the noise of blows on the bed. The assailant had made three stabs with a knife, but happily only penetrated the mattress and sheets. He was seized and locked up in a room by himself, and the next morning was utterly unconscious of what had transpired. This was the first time he had ever shown symptoms of somnambulism.

Sanitary Measures in the East.—The French Government, upon the advice of the International Sanitary Committee of Constantinople, has appointed a physician who is to reside at Djeddah. This town, as is well known, is the link between Mecca and the East. He is to watch the public health, and send reports to Constantinople and Alexandria. By the same Government a French hospital has been founded at Suez, whence information is to be sent home. A medical establishment has also been formed at Teheran, where the progress of epidemics in Persia and the surrounding countries is to be studied.

A GOOD EXAMPLE.—There is in the kingdom of Italy a parish called Dicomano. After eighteen years' service as Poor-law medical officer to that parish, Dr. Consortini, broken in health by overwork, requested some alleviation of duties. The authorities decided that this request could not be granted, and simply discharged their medical officer, along with his colleague, Dr. Corradini. The plea against the latter was, that although he had faithfully discharged his duties for eighteen years, he had lost the confidence of the inhabitants. The appointments were offered to other medical men, *but no one presented himself*. The guardians, at last, succeeded in inducing Dr. Bompiani to take charge of the patients *ad interim*, he declaring that he could not accept the appointment. The ill-used men are bringing an action against the guardians.

MILITARY HOSPITAL ARRANGEMENTS IN PRUSSIA.—Professor Esmarch, of Kiel, has substituted the ordinary shirting triangle for the bandage which Prussian soldiers used to carry in their knapsacks. He has managed the triangle in such a way that the first dressing of wounds and fractures can, behind the firing line, be instantly applied, guns and bayonets being used as temporary splints. M. Wittmaack has sent to the exhibition of Kiel an oil painting representing an action, and the manner in which the triangle should be used. The picture has attracted much attention, and it has been ordered to be printed on each of the triangles given to the troops, so that they may, on the very linen used, see the manner of employing it.

THE PILGRIMS FROM MECCA.—The "Gazette des Hôpitaux" states that this year the return of the pilgrims from Mecca has been satisfactory in a sanitary point of view, and that this result is mainly owing to the measures adopted by the International Committee of Constantinople. No less than 7225 pilgrims reached Suez both by the land and sea route, and they were placed under a kind of quarantine surveillance. Out of these only 25 died in the lazaretto,—viz., 12 of dysentery, 8 of chest complaints, and 5 of old age. The passage of pilgrims is now ended, and travellers from Arabia are no longer subjected to any restriction.

THE DENTAL PROFESSION IN AMERICA.—The dentists of this State have reason to congratulate themselves upon the passage of an Act according to them the privilege of granting diplomas, thus making a visible distinction between the skilled and unskilled practitioner. As we understand it, there is power granted for the formation of a State Dental Society, under the same auspices as those enjoyed by the Medical Society of the State. If such an association be brought to life, it can count upon the hearty support of the profession at large.—*New York Medical Record.*

A FRENCH HOSPITAL AT PANAMA.—The French Benevolent Society of Panama had, for some time past, kept up an hospital for their countrymen; but it was situated in a building hired by the month, and hardly adequate. M. Leblanc has now generously given a piece of land to the Society; and with the assistance of M. Lamarqui (the agent of Messrs. Hue, of Bordeaux), who has promised an advance of funds, an hospital is to be constructed, the first stone of which is to be laid on the 15th of August.

THE MEDICAL MEN OF THE NORTH GERMAN UNION.—A very pressing petition, extensively signed by German medical men, has been sent to the Parliament touching a paragraph in the new Commercial Bill now in course of discussion. The Bill renders medical men liable to *imprisonment* if they do not comply with the directions of the authorities in cases of disease or accident. This is thought tyrannical and vexatious, and has called forth a vigorous protest, accompanied by reasons of great weight.

TÆNIA SOLIUM AND RAW MEAT.—Dr. Pietro Grilli states, in *L'Imparziale*, that in the course of seven months, he came across seven cases of tænia, three of which were his own. The cases all referred to children who had partaken of raw meat. The author states that good mechanical or chemical means to destroy the cysticercus is as yet wanting. *Primâ facie* it would seem as if complete trituration might answer the purpose.

INOCULATION OF CANCEROUS MATTER.—It would appear from the experiments of M. Goujon, mentioned in the *Gazette Hebdomadaire*, that he succeeded in causing not only the appearance of a cancerous tubercle on the skin of a guinea-pig inoculated with the matter of epithelioma, but also an eruption of the same morbid manifestation on the mucous surface of the intestinal canal.

ECONOMY OF WATER.—Mr. Macdonald, writing to *The Times* in regard to the influence of sun and shade upon evaporation, says:—"In the summer of 1864 a calculation was made, which showed that in 40 days the evaporation of an unprotected pond containing about 14,000 gallons of water was 9,000 gallons,—as much, in fact, as would have supplied a flock of 500 sheep for the time."

THYMIC ACID.—This acid, obtained from the essential oil of thym, has been proposed as a succedaneum of carbolic acid or creasote. It emits no disagreeable smell, and is powerfully antiseptic. Its composition is $C_{20}H_{14}O_2$. In a concentrated form it may take the place of nitrate of silver; and, as an antiseptic, it should be dissolved in 1000 parts of water, with the addition of a little alcohol.

A SINGULAR case of poisoning is reported from Lancaster. A girl, three years of age, drank the water from a saucer in which had been placed a sheet of the prepared paper popularly known as "catch 'em alive's," which is used for the destruction of flies; she soon became ill, but with medical assistance recovered. The paper is said to have contained sufficient arsenic to poison two or three children.

STRANGULATED CRURAL HERNIA IN A CENTENARIAN; OPERATION; RECOVERY.—M. Labbé, surgeon to the Paris Salpêtrière (asylum for aged women and the insane), lately had to operate upon a woman 105 years of age for the above complaint. The wound suppurated for about a week, and the patient made a good recovery.

SILKWORM DISEASE.—M. Pasteur has been making some fresh observations in silkworm disease. He thinks that the entophytic growths are favored by bad digestion. M. Pasteur reduced a quantity of mulberry leaves to pulp with water, and found in a few hours that fungi identical with those found in the silkworm were present.

THE "Army and Navy Gazette" states that at the Curragh instructions have been received that, as a sanitary measure, patients in military hospitals are to be allotted 1200 cubic feet of space each, and arrangements are being made to give effect to these instructions as soon as possible.

A CONSIDERABLE number of distinguished literary and scientific men of New York have recently met for the purpose of discussing the advisability of founding an American Academy on the model of the French Institute.

CINCHONA IN JAMAICA.—It is expected that from 6000 to 10,000 plants of the *Cinchona succirubra* will be ready for sale in the island of Jamaica, at the plantation at Gordon Town, in the spring of 1869.

REFUSAL OF MEDICINES BY THE INSANE.—Dr. Van Holsbeck, in such cases, advises the medical substances to be reduced to powder, and taken in the form of snuff.

DR. J. AITKEN MEIGS has been elected to the Professorship of the Institutes of Medicine in the Jefferson Medical College, U.S.

THE University of Oxford has intimated its intention of conferring the honorary degree of D.C.L. on Prof. Syme.

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# THE LANCET.

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J. HENRY BENNET, M.D., T. WAKLEY, JR., M.R.C.S.E. EDITORS.

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## Address

ON

## THE RELATION OF FOOD TO WORK DONE BY THE BODY, AND ITS BEARING UPON MEDICAL PRACTICE.

*Delivered at the Meeting of the British Medical Association at Oxford.*

BY THE

REV. PROFESSOR HAUGHTON,

M.D., F.R.S., D.C.L. Oxon., Fellow of Trinity College, Dublin.

*Introductory.*—Man, like other animals is born, grows, comes to maturity, reproduces his like, and dies; passing in his lifetime through a cycle of changes that may be compared to a *secular* variation, by a metaphor borrowed from the science of astronomy; while in his daily life he passes through a smaller cycle of changes that may be called *periodic*.

From the time of the publication of Bichat's essay "On Life and Death," it has been admitted that man and other animals possess a double life, *animal* and *organic*, presided over respectively by two distinct, though correlated centres of nervous force; of these, one *thinks*, *moves*, and *feels*; the other merely *cooks*,—receiving the food supplied, changing and elaborating it into elements suitable for the use of the animal life.

In the lower forms of animals, the organic life become almost coextensive with the whole being of the creature, which simply digests, assimilates, and excretes; but barely feels or moves. In the higher forms of animals, and more especially in man, the animal life dominates over the organic life, which becomes its slave, and it exhibits the remarkable phenomena of *mechanical force*, of *geometrical instinct*, of *animal cunning*, and finally, in man himself, produces *intellectual work*, rising to its highest form in the *religious feeling* that recognises its great Creator, and bows in humility before Him.

It is a simple matter of fact, and of every-day observation, that all these forms of *animal work* are the result of the reception and assimilation of a few cubic feet of oxygen, a few ounces of water, of starch, of fat, and of flesh.

The general question of the relation of Food to Work would involve a consideration of the possibility of throwing a bridge across the gulf that separates the organic from the animal life, so as to connect the products of nutrition (taken in its widest sense) with the work of every kind accomplished by the animal life, whether mechanical or intellectual.

We resemble the spiders of the heather on a summer morning, that float their gossamer threads into the air from the summit of a branch, in the hope that some stray breath of wind may fasten it to a neighboring tuft, and enable the hungry speculator to extend the range of his rambles and his chance of food. Already a few feeble threads connect the chemistry of our food with the *mechanical work* done by our muscles; when these have been securely fastened, from the higher vantage-ground acquired, our little bridge of knowledge may possibly be extended to embrace the phenomena of the geometrical instinct of the bee, or the cunning of the beaver; and our successors may even dare to speculate on the changes that converted a crust of bread, or a bottle of wine, in the brain of Swift, Molière, or Shakspeare, into the conception of the gentle Glumdalclitch, the rascally Sganarelle, or the immortal Falstaff.

At present such thoughts would be justly regarded as the dreams of a lunatic, and I must crave your indulgence for having mentioned them. The history of science is, however, filled with such dreams; some never realised; others converted by time into realities so commonplace that the genius of their originators is habitually forgotten or underrated.

During childhood and youth, the food that we eat is used for the double purpose of building up the tissues of the bones, the muscles of the brain, and other organs of the body; and of supplying the force necessary for work done, whether mechanical or intellectual. In adult life, the first use of food almost disappears, for the bones, the muscles, the brain, and other organs, have already reached their full development, and act simply as the media of communication between the food received and the work developed by it.

Let us take, as illustrations, the muscles and brain, regarded as the organs by means of which mechanical and intellectual work is done. These organs resemble the piston, the beam, and the fly-wheel of the steam-engine, and, like them, only transmit or store up the force communicated by the steam in one case, and by the products of the food conveyed by the blood in the other case. The mechanical work done by the steam-engine must be measured by the loss of heat experienced by the steam in passing from the boiler, through the cylinder, to the condenser, and not by the loss of substance undergone by the several parts of the machinery on which it acts. In like manner the mechanical or intellectual work done to the food we eat is to be measured not by the change of substance of the muscles or brain employed as the agents of that work, but simply by the changes in the blood that supplies these organs—that is to say, undergone by the food used, in its passage through the various tissues of the body, before it is finally discharged in the form of water, carbonic acid, or urea.

The Divine Architect has so framed the animal machine, that moves and thinks, that the same blood which by its chemical changes produces movement and thought, also repairs the necessary waste of the muscles and brain, by means of which movement and thought are possible; just as if the steam that works an engine were able, without the aid of the engineer, to repair the wear and tear of its friction and waste spontaneously; but no greater mistake is possible in physiology than to suppose that the products of the changes in the blood, by which mechanical or intellectual work is done, are themselves merely the result of the waste of the organs, whether muscles or brain, on the exercise of which that work depends.[*]

The ancients, who derived all their knowledge from observation, and not from experiment, were well aware of the double duty imposed upon food in early life—of producing both the *secular* and *periodic* variations of the body; or, in other words, of promoting growth, and of developing work. Their practical knowledge is summed up by Hippocrates in the aphorism—"Old men bear want of food best; next those that are adults; youths bear it least, more especially children; and, of these, the most lively are the least capable of enduring it."[†]

The food consumed in twenty-four hours, including air and water, undergoes a series of changes of a chemical character before leaving the body, in the form of one or other of its excretions. Some of these changes develop force, and others expend force, but the algebraic sum of all the gains and losses of force represents the quantity available for work. This work must be expended as follows:—1. The work of growth (*secular.*) 2. The work of maintaining heat (*periodic*). 3. Mechanical work (*periodic.*) 4. Vital work (*periodic*).

During childhood and youth the work of growth is positive, for a certain proportion of the food used is employed in building up the tissues of the body instead of being expended in actual work; it is, in fact "stored up" in the body, as *vis viva* is stored up in the fly-wheel of machinery, and constitutes a reservoir of force that may be called upon at any emergency requiring sudden expenditure of force, or in case of illness, or in the gradual wasting of old age.

In adult life, and in old age, the work of growth ceases completely, except so far as is necessary to repair, from day to day, the small wastes of the organs employed in work; so that nearly the whole of the food employed is expended on the *periodic* work of the body.

Hence we can readily see the reason for the aphorism which asserts that food is more necessary for the young than for the old, and more required by those of a lively disposition, either of mind or body, than by others.

*Hippocratic doctrine of innate heat.*—Hippocrates was well aware of the connexion between food and animal heat, although he erroneously regarded the animal heat as an innate property of the body that caused an appetite for food, instead of being itself produced by food; if we transpose his cause and effect, *mutatis mutandis*, all his maxims as to animal heat are true. Thus, he says:—

"Growing animals possess most innate heat, hence they require most food;......but the old have least heat, and therefore require the least fuel.[*] The cavities of the body are naturally warmest in winter and spring;......in these seasons, therefore, most food must be given; and since there is more innate heat, more nourishment is required; as may be seen in youths and athletes."

These maxims, when translated into modern language, express the well-known fact that the chemical changes of food that take place in the body produce animal heat, and that the necessity for food to supply mechanical work is greatest with the young and active, while the necessity for the production of animal heat is greatest in the cold seasons of the year. The direct connexion of food with mechanical work is expressed in the following maxims:—

"There should be no labor where there is hunger"[†]—and its converse, "Let labor precede meals."[‡]

On principles such as those just given, the training of the athletes was conducted; and they were compelled to undergo a regular course, commencing with bloodletting and active purgation,[§] and consisting of systematic muscular exercise suited to the nature of the contest intended, accompanied by a dietary, of which the chief ingredients consisted of biscuits and pigs' kidneys, washed down by a minium of water. It is, truly, not much to be wondered at that those who survived the trainng were formidable in the boxing ring or racecourse.

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[*] The very skill with which provision is made for the repair of the waste of the organ used as the instrument of work may mislead the observer into supposing that the work itself may be measured by the waste of its instrument. Thus it has been shown by Mr. A. Macalister, that the heart which has imposed upon it the necessity of working day and night without ceasing, during life, is furnished with double the usual supply of blood through the coronary arteries, which are injected twice for every single beat of the heart. If, indeed, it were possible to assume that all muscles wasted equally for equal quantities of work, and also to measure separately the products of that waste, we might then assume the waste of the organ as the measure of its work. Neither of these assumptions, however, can be admitted; for it can be shown that different muscles act under different conditions, more or less advantageously, so that equal waste would represent unequal works; and, also, it is impossible to separate in practice the products of waste of muscles from those of the general changes of the blood.

[†] Aph. I., 13.

[*] Aph. i., 14.

[†] Ibid. ii., 16.

[‡] Epid. vi., sect. iv., 28.

[§] Ib., sect. v., 32.

The relation of animal heat to respiration is referred to by Hippocrates in a remarkable maxim: “Those persons have the loudest voices who have, most [innate] heat, for they inspire the largest quantities of the cold air; and the product of two great quantities must be itself great.”[*]

Galen believed the heart to be the centre of “innate heat;” but he was well aware that increase or diminution of respiration caused increase or diminution of heat, and was intimately connected with it. Thus he says:—“Since, therefore, the heart is, as it were, the hearth and fountain of the innate heat with which the animal is pervaded,” &c.[†] “The necessity for respiration is the greatest and most imperious guard of the innate heat.”[‡] “Those persons in whom the innate heat has been much cooled breathe but little and slowly.”[§]

*Lavoisier's theory of animal heat.*—The doctrine of “innate” heat, taught by Hippocrates and Galen, ruled in Medicine for 1500 years after Galen's death; until it received its death blow from the genius of Lavoisier, who demonstrated in his celebrated memoir, read before the French Academy of Sciences in 1783, that the source of animal heat is to be found in the combustion of the carbon of the body by the oxygen of the air received into the lungs by respiration. Lavoisier's experiments were repeated and confirmed in 1822 by Dulong and Despretz; and have formed the starting-point for all modern investigations on the relation of food to work.

As already stated, the work done by food in the body may be divided into the work of growth, the work of animal heat, mechanical work, and vital work.

Lavoisier arranged his experiments so as to exclude almost all kind of work done, except that of animal heat. A guinea-pig was placed under a bell glass inverted over a surface of mercury, and a current of fresh air was allowed to circulate through the apparatus, being passed at its final exit through tubes containing caustic potash, which arrested the carbonic acid produced by the animal. In this manner it was easy to ascertain the carbonic acid excreted, by the increase in weight of the tubes of caustic potash during the experiment.

Lavoisier found that his guinea-pig, in ten hours, burned, on the average, 3·333 grms. of carbon; and this quantity of carbon he estimated from other experiments as capable of melting 326·75 grms. of ice at the freezing temperature.

The same guinea-pig was then placed in an ice calorimeter, and left in it for ten hours, during which time the heat of its body was found to have melted 402·27 grms. of ice at the freezing temperature.

If, we use, instead of the coefficient of combustion of carbon employed by Lavoisier, that now generally adopted from the experiments of Favre and Silbermann, the quantity of melted ice represented by 3⅓ grms. of carbon would become 364·78 grms., instead of 326·75 grms.

We are, therefore, entitled to say that the heat of combustion of expired carbon determined by Lavoisier is equal to

$$\frac{36478}{402\cdot27} = 90\cdot68 \text{ per cent.}$$

of the animal heat developed, which is regarded as 100.

Two years later, in 1785, Lavoisier laid before the Royal Society of Medicine of Paris an account of further experiments, also conducted on the breathing of guinea-pigs, by which he showed, that of 100 parts of oxygen absorbed by those animals, 81 only reappeared in the form of carbonic acid, and 19 parts disappeared altogether. Lavoisier considered that these 19 parts of oxygen were employed in the body in the combustion of hydrogen, the product of such combustion being water.

If we use Lavoisier's data just given, and the known atomic weights of carbon, oxygen, and hydrogen, we shall have, for 81 parts of oxygen in the form of carbonic acid, and 19 parts of oxygen in the form of water, the following quantities of carbon and hydrogen consumed by the respiration of a guinea-pig in the same time:—

$$\text{Carbon} = \frac{6 \times 81}{16}$$

$$\text{Hydrogen} \quad \frac{19}{8}$$

Multiplying these numbers by the heat coefficients of Favre and Silbermann, we find—

$$\text{Heat produced by carbon} = \frac{6\times81}{16} \times 8080$$

$$\text{Heat produced by hydrogen} = \frac{19}{8} \times 34462$$

It has been already shown that the heat developed by the combustion of carbon in Lavoisier's experiment amounted to 90·68 per cent. of the heat emitted by the animal; hence the heat produced by the combustion of the hydrogen will amount to

$$90\cdot68 \times \frac{19\times34462}{8} \times \frac{16}{6\times81\times8080}$$

= 30·24 per cent. of the heat emitted by the animal. By adding together the heats due to the carbon and hydrogen, we find that Lavoisier's experiments, when fairly interpreted by the data of modern science, give the following results:—

| | |
|---|---|
| Heat produced by the combustion of carbon and hydrogen ... ... | 120·92 |
| Animal heat ... ... ... ... ... ... | 100·00 |

Finally, in 1789, Lavoisier published further experiments, by which he showed conclusively that the consumption of oxygen by the body is notably increased by three causes: 1st, by a lowering of the external temperature; 2nd, by the act of digestion; 3rd, by muscular exercise.

The experiments of Lavoisier were repeated in 1822 by Dulong and Despretz; and their results, when corrected, like those of Lavoisier, by using the modern heat coefficients of carbon and hydrogen, are as follows: —

The mean of Dulong's experiments on sixteen animals and birds is 90·6 per cent of the animal heat given out; the lowest number, 85·5, belonging to a kitten sixty days old; and the highest number, 99·4, belonging to a puppy fifty days old.

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[*] Epid. vi., sect. iv., 22.

[†] De usu partium, lib. vi., ch. 7.

[‡] De diff. Resp., lib. i., ch. 4.

[§] Ib., ch. 20.

M. Desbretz obtained an average of 92·3 from sixteen mammals and birds; his highest number being 101·8, derived from an old female rabbit; and his lowest number being 84·2, derived from four owls.

The foregoing experiments left no doubt remaining in the minds of men of science as to the substantial truth of Lavoisier's doctrine of animal heat; and led immediately to a number of supplementary experiments, amongst the most remarkable of which were those of Regnault and Reiset.

Regnault directed his attention especially to the distribution of the oxygen absorbed by animals, between the carbon and hydrogen of their blood, or tissues, which had been laid down by Lavoisier in the proportion of 81 to 19. He found that the proportion was not a fixed one, but varied with the food in a very instructive manner.

The average of his experiments on fourteen animals, including worms, lizards, and insects, as well as birds and mammals, was—oxygen combined with carbon, 81·7; oxygen combined with hydrogen, 19·3—a result identical with that found by Lavoisier. The highest proportion of oxygen combined with hydrogen occurred in the case of chickens fed on meat, and amounted to 32 per cent.; and the lowest proportion occurred in the case of rabbits fed on bread and oats, and amounted to 1 per cent. only.

Still more recent experiments, made with imbroved apparatus and methods by Pettenkofer and Voit, in Munich, show, like those of Regnault, that the proportion of the oxygen employed in forming carbonic acid, to the whole oxygen absorbed, varies with the food, ranging in the case of a large dog from 52·4 to 148·2, according as the animal was kept altogether without food, or fed upon a mixed diet of meat and sugar. These investigations have also shown that under ordinary conditions, it is probable that a dog consumes nearly all the oxygen absorbed in the formation of carbonic acid.

Before leaving the subject of animal heat, it is worth while to estimate its amount in a manner that will bring it into comparison with ordinary mechanical work.

In Lavoisier's experiment with the guinea-pig, 402·27 grms. of ice were melted in ten hours; from this fact we find, assuming the latent heat of ice at 142° F., and 772 as Joule's coefficient for converting British heat units into foot pounds—*Mechanical work equivalent to the daily animal heat of Lavoisier's guinea-pig*=

$$\frac{402{\cdot}27 \times 24 \times 142 \times 15{\cdot}432 \times 772}{7000 \times 10}$$
$$= 233310 \text{ ft. lbs.}$$

As the average weight of a guinea-pig is 4 lbs., the preceding amount of work, representing animal heat, would be sufficient to raise the weight of the animal through a vertical height of

$$\frac{23310}{4 \times 5280} = 11{\cdot}05 \text{ miles.}$$

Ranke has shown, by experiments made upon himself, under various conditions of food and fasting, by means of Pettenkofer and Voit's apparatus, that his daily excretion of carbonic acid varied from 660 grms. to 860 grms. His weight was 67 kilos., from which fact, and the assumption that an English mile is 1600 meters, we obtain, employing the contents already given, the height through which the combustion of this quantity of carbon would raise the weight of 67 kilos. in twenty-four hours—

$$= \frac{760 \times 6 \times 8{\cdot}080 \times 423}{22 \times 67 \times 1600} = 6{\cdot}609 \text{ miles.}$$

The extreme values of the carbonic acid excreted—namely, 660 grms. and 860 grms.—would correspond to the heights of 5·74 miles and 7·48 miles respectively.

Pettenkofer and Voit succeeded in producing a range of carbonic acid excreted by a large dog, weighing 33·3 kilos., from 289·4 grms. to 840·4 grms.; the minimum corresponding to the tenth day of fasting from solid food, and the maximum corresponding to a diet of 1800 grms. of meat, 350 grms. of fat, and 1410 grms. of water.

It may be easily shown by a calculation similar to the foregoing that these excretions of carbonic acid correspond to the mechanical works of lifting the weight of the dog through vertical heights of 5·03 miles, and 14·62 miles respectively.

Combining fogether the preceding results, and expressing them all in the natural units of the weights of the animals lifted through a height, we find:—

*Work due to Animal Heat.*

| | |
|---|---|
| Guinea-pig ... ... ... | 11·05 miles. |
| Man ... ... ... ... ... | 5·74 " |
| Man ... ... ... ... ... | 7·48 " |
| Dog ... ... ... ... ... | 5·03 " |
| Dog ... ... ... ... ... | 14·62 " |
| Mean ... ... ... | 8·784 " |

*Source of muscular work.*—As soon as it was satisfactorily established by Lavoisier and his successors that the natural combustion of carbon and hydrogen in the blood was sufficient, and rather more than sufficient, to account for the animal heat, it became a matter of great interest to physiologists to ascertain, if possible, how much of the work developed in the blood by chemical changes is employed in producing animal heat, how much in mechanical work, external and internal, and how much in vital or mental operations.

At the outset of this inquiry it received a misdirection from the conjecture thrown out by Liebig, that the excretion of nitrogen (in the form of urea) gave necessarily the measure of the wear and tear of the muscular tissues themselves, which are composed of proteinic or nitrogenous compounds. This conjecture led to Liebig's celebrated classification of food into *heat-producing* and *flesh-forming* foods, which has been unhesitatingly received until lately, in this country, by physiologists and physicians.

Before investigating the truth or falsity of Liebig's theory, it is worth while to state the most recent results obtained as to the muscular work per day of which man is capable.

From numerous observations, of which some were made by myself, on the daily labor of hodmen, paviours, navvies, and pedlars, I have obtained the following mean:—

Daily labor of man = 353·75 ft. tons = 109549 kil. met.

This quantity of work is the exact equivalent of the work done by a man of 150 lbs. weight in climbing through one mile of vertical height, and is, as I have already shown, less than *one-eighth* part of the work expanded in producing and maintaining animal heat. Even if we add to the external muscular work that of circulation and respiration, which may be estimated at 133 ft. tons, the whole work done by the muscles, voluntary and involuntary, of a hard-worked laborer will amount to less than *one-sixth* of the work expended in maintaining the temperature of his body at 100° F.

I was led to believe, from my investigations as to the quantity of urea excreted in various diseases, that a certain minimum quantity equivalent to 2 grs. per pound avoirdupois of body weight was excreted quite independently of muscular exertion; and I proved that death was preceded in many chronic diseases by a fall in the urea excreted to 2 grs. per pound. These investigations were made chiefly on patients dying of advanced kidney disease, in which the excretion of albumen had nearly or altogether ceased, and on patients dying of phthisis.

Pettenkofer and Voit found that the excretion of urea in a dog reduced to 29 kilos. by ten days' fasting was reduced to 8·6 grms. And, since

29 kilos.= 63·8 lbs.
8·6 grms.=132·7 grs.
Excretion of urea=2·08 grs. per lb. of body weight.

Ranke obtained a precisely similar result from observations made upon himself, after long fasting, continued for several days.

If these views be well founded, it is plain that part only of the urea excreted can be regarded as due to muscular exertion, for 2 grs. per lb. (or 300 grs. for a man weighing 150 lbs.) must be set aside as a constant due to vital work, independent of muscular work altogether. Hence it would follow, supposing the muscular exertion to be measured by the increased excretion of urea produced by it, that the urea will not increase as fast as the muscular exertion, but it ought to increase regularly, although at a slower rate. With a view to settle this important question, I devised the following observations upon myself in the month of July, 1866, which proved conclusively that an increase of muscular exertion, amounting to fourfold, is not accompanied by any corresponding increase in the excretion of nitrogen, in the form of urea.

I had previously ascertained by repeated experiments, extending from 1860 to 1865, that my excretion of urea (under ordinary conditions as to exercise, which did not exceed five miles a day), ranged from 465·09 grs. to 537·47 grs. per day; mean, 501·28 grs. This quantity of urea I regarded as my natural physiological average, and it was so well established that I thought I should obtain an important result by comparing it with the average found from several days of unusual muscular exertion. I accordingly walked for five consecutive days in the hilly districts of Wicklow, noting carefully the horizontal distance traversed each day, and the vertical height traversed up and down. The vertical heights were reduced to horizontal distances, on the assumption, which is well founded, that 20 is the proper coefficient for converting one into the other, and on the assumption that the work of descent is half the work of ascent. During the five days of observation the work done, expressed in horizontal miles of walking, was as follows:—

*First day.*

| | | Miles. |
|---|---|---|
| Miles walked ... ... | | 11·4 |
| Height ascended ... | 1800 ft.= | 10·2 |
| | | 21·6 |

*Second day.*

| | | |
|---|---|---|
| Miles walked ... ... | | 12·0 |
| Height ascended ... | 2400 ft.= | 13·7 |
| | | 25·7 |

*Third day.*

| | | |
|---|---|---|
| Miles walked ... ... | | 11·6 |
| Height ascended ... | 1400 ft.= | 8·0 |
| | | 19·6 |

*Fourth day.*

| | | |
|---|---|---|
| Miles walked ... ... | | 9·3 |
| Height ascended ... | 1400 ft.= | 8·0 |
| | | 17·3 |

*Fifth day.*

| | | |
|---|---|---|
| Miles walked ... ... | | 10·4 |
| Height ascended ... | 1600 ft.= | 9·1 |
| | | 19·5 |

From the preceding statement it follows that the average work done each day was 20·74 miles of horizontal walking—the result of which upon the urea excreted was to be compared with the result already mentioned, as a physiological constant determined under circumstances in which the daily muscular work never exceeded 5 miles of horizontal walking.

In order to determine the urea, I collected each day all the urine passed, and kept one-fifth part of it; and at the close of the fifth day examined the mixture formed from the five days' urine. It was found to contain 501·16 grains of urea per day; a result identical with the physiological quantity previously found by me under totally different conditions—namely, 501·28 grains. I was much surprised at this result, for I had previously believed in the theory laid down by Liebig, which attributed the excretion of urea to the disintegration of muscular tissue.

It might be objected to the preceding reasoning that there can be no doubt as to the capability of the combustion of proteinic compounds represented by 501·28 grains of urea excreted to produce mechanical force sufficient to explain the muscular exertion of walking 20 or 21 miles per day; as may be shown in the following manner:—

(1) The urea excreted bears to the proteine consumed the proportion of 24 to 79; as appears from their chemical compositions—namely,

| | | |
|---|---|---|
| Urea ... ... | $C_2\ H_4\ N_2\ O_2$ | ... ... 60 |
| Proteine ... | $C_{36}\ H_{27}\ N_4\ O_{12}$ | ... ... 395 |

(2) In 100 parts of proteine there are 53·7 parts of carbon and 7 parts of hydrogen; the total heat due to the combustion of 1 grm. of proteine is, therefore,

| | Heat units. |
|---|---|
| 0·537 grm. of carbon ... ... | 4·3389 |
| 0·070 grm. of hydrogen ... ... | 2·4123 |
| | 6·7512 |

This number, 6·7512, represents the maximum quantity of heat units* that could be produced by the combustion of 1 grm. of proteine; but the term depending on hydrogen in it should be reduced to five-ninths of its amount, in consequence of the hydrogen already combined with oxygen in the proteine. Hence we find—

---

* Heat unit = 1 kilog. of water raised 1° c.

*Combustion of* 1 *grm. of proteine.*

| | | |
|---|---|---|
| Carbon ... ... ... | 4·3389 | heat units. |
| Hydrogen ... ... | 1·3402 | „ |
| | 5·6791 | |

(3) In 100 parts of urea there are 20 parts of carbon and 6⅔ parts of hydrogen: the total heat, therefore, due to the combustion of 1 grm. of urea is

| | |
|---|---|
| 0·20 grm. carbon ... ... ... | 1·6160 |
| 0·067 grm. hydrogen ... ... | 2·3089 |
| | 3·9249 |

The term depending on hydrogen in this result should be reduced to one-half, in consequence of the hydrogen already combined with oxygen in the urea. Hence we find—

*Combustion of* 1 *grm. of urea.*

| | |
|---|---|
| Carbon ... ... ... ... | 1·6160 |
| Hydrogen ... ... ... ... | 1·1544 |
| | 2·7704 |

4th. From the three preceding statements it is easy to see that, for every gramme of proteine consumed, 0·8416 heat units are contained in the urea excreted; so that

*The digestion of* 1 *gramme of proteine gives out* 4·8375 *heat-units.*

It is easy to see that 501·28 grs. of urea excreted correspond to 1650 grs. of proteine in the food, or to 106·92 grammes; and the total work to the digestion of this quantity of food may be found by multiplying it by the "*digestion coefficient*" already found, and by 423, which is Joule's coefficient for converting heat-units into kilogrammeters. Hence we have—

*Work due to production of* 501·28 *grs. of urea.*

$$= 106{\cdot}92 \times 4{\cdot}8375 \times 423$$
$$= 218786 \text{ k. m.}$$
$$= 704 \text{ ft. tons.}$$

This amount of theoretical work produced by nitrogenous food is more than double the work actually done during the walking excursion.

The average work was 20·74 miles horizontal per day, which may be considered as the exact equivalent of lifting my weight (knapsack and clothes included = 150 lb.) through one mile of vertical height. Hence the work actually done by me was—

$$\frac{150 \times 5280}{2240} = 354 \text{ ft. tons.}$$

I have elsewhere shown that the work done by the heart per day amounts to 122 ft. tons, which should be added to the external work, as well as the unknown work due to the muscles used in respiration, probably amounting to one-sixth of the heart's work, or 21 ft. tons; adding these quantities we find

| | |
|---|---|
| External work... ... ... ... | 354 ft. tons. |
| Circulation and respiration ... | 133 „ |
| | 487 „ |

This quantity represents 69 per cent. of the applied work, which was shown to be 704 ft. tons.

The amount of muscular work accounted for is 354 ft. tons, which is almost exactly half the whole theoretical work supplied by the food that goes to form urea—viz., 704 ft. tons; but it has been already shown that 2 grs. of urea per pound of body weight is required to maintain the vital work, including circulation and respiration. This would give from 240 grs. to 260 grs. of urea out of the 501 grs. available for vital work, so that one-half of the available work, may be considered as expended on vital work, and the other half as expended on external muscular work. This supposition, however, requires us to believe that the muscles act without loss by friction. This is not admissible, for I have elsewhere endeavored to show that there is a loss in the force applied by the muscles of various animals in consequence of the friction of their tendons amounting—

| | |
|---|---|
| In man to ... ... ... | 35 per cent. |
| In the mastiff to ... ... | 41 „ |
| In the kangaroo to ... ... | 61 „ |

Hence it may be regarded as certain that the available force represented by 501 grs. of urea is not sufficient to account fully both for vital work and for the external mechanical work expended by during the experiments just described.

The foregoing observations and calculations were made in the month of July, 1866, but I did not then publish them, as I found afterwards that I had been anticipated by Dr. Fick and Dr. Wislecenus, of Zurich, in a paper published in June in the *Philosophical Magazine*, on the urea excreted during an ascent of the Faulhorn. Professor Frankland, in a paper published in the same journal in September, 1866, corrected some erroneous reasoning that found its way into Fick's and Wislecenus' paper, and further supplied from direct experiment, the *digestion coefficient* of proteine, which had been obtained by me from calculation. The actual value of this important constant was found by him to be—

| | |
|---|---|
| Actual value of digestion coefficient of proteine ... | 4·3155 |
| Calculated value... ... ... ... ... ... ... | 4·8375 |

My only object in now publishing an account of the independent experiment and calculation made by myself, is to confirm the certainty of the important fact first proved experimentally by Fick and Wislecenus, that the force due to the urea excreted in a given time is not sufficient to provide the actual work that may be done by the muscles in the same time.

Liebig and his followers, misled by a preconception of the simplicity of nature, assigned to nitrogenous food the duty of providing the force necessary for the production of muscular work, by supplying the waste of muscular tissue; while they supposed the farinaceous and fatty foods to provide the amount of animal heat required by the body.

The opponents of Liebig have fallen into the opposite error, and deny that nitrogenous food contributes any portion of the force employed in muscular work.

The truth, as is usual, lies between the two extreme hypothesis, and we are now compelled to admit that a given development of force, expressed in animal heat, muscular work, and mental exertion may be the effect of several, perhaps many, supposable supplies of digested food, farinaceous, saccharine, fatty, and albuminous.

Just as a given algebraical function may be equated to a given constant, by the use of a certain definite number of values of its variable quantity, so may a given effect of work in the animal body be produced by certain definite, though very different combinations of various kinds of food, the digestion of which follows each its own law, and developes its own amount of force. The number of roots in our equation of life increases the difficulty of solving it, but by no means permits the acceptance of the lazy assumption that it is altogether insoluble, or reduces a sagacious guess to the level of the prophecy of a quack.

Lavoisier supposed in his earlier investigations that animal heat was developed by the combustion of carbon and hydrogen in the lungs; just as in earlier times it was supposed to be produced spontaneously in the heart, which was imagined to be so hot as even to burn the hand that should imprudently venture to touch it.

In like manner, Liebig and his followers supposed the muscular work to be developed in the substance itself of the muscles that were its instruments.

Both of these doctrines are now justly repudiated by physiologists; and the view proposed in 1845 by Dr. Mayer, of Heilbronn, and recently developed with much ability by Mr. C. W. Heaton, of Charing-cross Hospital in the *Philosophical Magazine* for May, 1867—that the blood itself is the seat of all the chemical changes that develop force in the body,—has gained favor among physiological chemists, and also met with acceptance among practical clinical observers.

Thus the human mind revolves in cycles, and the physicians of the nineteenth century are preparing to sit at the feet of Moses and learn that the blood of an animal really constitutes its life; while South African theologians reject his authority because he happened to confound a Rodent with a Ruminant.*

No two classes of animals can well differ more from each other than the cats and ruminants, one of which is intended by nature to eat the other. They differ in all respects as to food, the cats requiring a supply of fresh meat and blood for their health, and the ruminants being exclusively vegetable feeders; yet in both classes we find a great development of muscular power, and of a rapid action of muscles, qualities alike necessary to the pursuer and to the pursued. There can be no doubt that muscular work is developed in the cats from the combustion of flesh, and in the ruminants, mainly, if not exclusively, from farinaceous food. It is, however, worthy of remark, that the muscular qualities developed by the two kinds of food differ considerably from each other. The hunted deer will outrun the leopard in a fair and open chase, because the work supplied to its muscles by the vegetable food is capable of being given out continuously for a long period of time; but in a sudden rush at a near distance, the leopard will infallibly overtake the deer, because its flesh food stores up in the blood a reserve of force capable of being given out instantaneously in the form of exceedingly rapid muscular action.

In conformity with this principle, we find among ourselves an instinctive preference given to farinaceous and fatty foods, or to nitrogenous foods, according as our occupations require a steady, long-continued, slow labor, or the exercise of sudden bursts of muscular labor continued for short periods. Thus chamois hunters setting out for several days' chase provide themselves with bacon fat and sugar; the Lancashire laborers use flour and fat, in the form of apple dumplings; while the Red Indian of North America almost transforms himself into a carnivore, by the exclusive use of flesh food; he sleeps as long, and can fast as long, as the puma or jaguar; and possesses stored up in his blood a reserve of force which enables him, like a cat, to hold his muscles for hours in a rigid posture, or to spring upon his prey, like a leopard leaping from a tree upon the back of an antelope.

If the preceding view of the muscular qualities developed by the two kinds of food be correct important inferences suggest themselves as to the food that should be employed in relation to several kinds of work. Of these inferences I shall select two examples:—

1. The nurses of one of our Dublin hospitals were formerly fed chiefly upon flesh food and beer, a diet that seemed well suited to their work in ordinary times, which was occasionally severe, but relieved by frequent intervals of complete rest. Upon the occasion of an epidemic of cholera, when the hospital duties of the nurses became more constant, although on the whole not more laborious, they voluntary asked for bacon fat and milk, as a change of diet from the flesh meat and beer; this change was effected on two days in each week with the best results as to the health of the nurses, and as to their power of discharging the new kind of labor imposed upon them.

2. I have been informed, on competent authority, that the health of the Cornish miners breaks down ultimately, from failure of the action of the heart and its consequences, and not from the affection of the lungs called "miner's phthisis." The labor of the miner is peculiar, and his food appears to me badly suited to meet his requirements. At the close of a hard day's toil, the weary miner has to climb by vertical ladders through a height of 100 to 200 fathoms before he can reach his cottage, where he naturally looks for his food and sleep. This climbing of the ladders is performed hastily, almost as a gymnastic feat, and throws a heavy strain (amounting from one-eighth to one-quarter of the whole day's work) upon the muscles of the tired miner, during the half hour or hour that concludes his daily toil. A flesh-fed man (as a Red Indian) would run up the ladders like a cat, using the stores of force already in reserve in his blood; but the Cornish miner, who is fed chiefly upon dough and fat, finds himself greatly distressed by the climbing of the ladders—more so indeed than by the slower labor of quarrying in the mine. His heart, over-stimulated by the rapid exertion of muscular work, beats more and more quickly in its efforts to oxidate the blood in the lungs, and so supply the force required. Local congestion of the lung itself frequently follows, and lays the foundation for the affection, so graphically, though sadly, described by the miner at forty years of age, who tells you that "his other works are very good, but that he is beginning to leak in the valves."

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* No reasonable person can fail to perceive the ignorance of the great Law-giver who will apply to him the test first proposed by Swift for Homer. Moses, like the author of the "Iliad," was totally unacquainted with the discipline and doctrines of the Church of England.

Were I a Cornish miner, and able to afford the luxury, I should train myself for the "ladder feat" by dining on half a pound of rare beefsteak and a glass of ale, from one to two hours before commencing the ascent.

The excretion of nitrogen by the cats and ruminants is very different, as might be expected from their food. I have ascertained that the urea discharged by a Bengal tiger and a sheep, daily, is as follows:—

| | |
|---|---|
| Bengal tiger ... ... ... ... | 4375 grs. of urea. |
| Sheep ... ... ... ... ... | 256 „ |

It is worthy of remark, and serves to throw light on the meaning of the excretion of nitrogen from the body, that causes but slightly connected with muscular exertion in the ruminants increase amazingly the excretion of urea. Thus I have found the following excretion of urea from a ram during the rutting season:—

Ram (rutting season) ... .. 1493 grs. of urea.

This amounts to a *sixfold* increase of urea, which cannot possibly be accounted for by the food consumed at the time, but requires us to assume a certain storing up of force represented by nitrogenous compounds, which has been going on for a considerable period previous to the rutting season. A similar and equally remarkable storing up of phosphates and carbonates takes place, previous to the rutting season, in the ruminants that shed their horns, which in the Cervus Megaceros often weigh 90 lb.

### *Applications of Theory to Diseased Conditions of Body*

The relation of food to work, complicated enough in health, becomes more so in disease, and the problem to be solved by rational theory becomes still more difficult. I cannot attempt even to sketch an outline of this part of my subject considered in general, but shall content myself with asking your attention to three remarkable examples of disease which illustrate the principles I have attempted to lay down.

These diseases are—

A. Typhus fever.
B. Cholera Asiatica.
C. Diabetes mellitus.

A. *Typhus fever.*—In typhus fever a prominent symptom is the remarkable elevation of temperature accompanied by an increased excretion of urea and carbonic acid by the kidneys and lungs, indicating (as no food is taken) an increased morbid metamorphosis of the blood and tissues. The temperature frequently rises to 104°F., representing an increase of upwards of 5°F. above the normal temperature.

If we knew the cause of this increase of temperature, or rather of the increased metamorphosis of which it is the sign, we should know the cause of *typhus* fever, and learn to combat the disease on rational grounds. At present the cause is unknown, and therefore the physician is forced to treat the symptoms as they appear, instead of attacking the cause of the disease. Let us examine for a moment the terrible significance of the symptoms.

Your patient lies for nine or ten days supine fasting, sub-delirious; the picture of weakness and helplessness; and yet this unhappy sufferer actually performs, day by day, an amount of work that might well be envied by the strongest laborer in our land.

The natural temperature of the interior of the body is 100°F., while the temperature of the corresponding parts in typhus fever is at least 105°F. This seems at first sight a small increase—only 5 per cent. of the whole; but it is in reality 2½ times as great as it appears, and actually amounts to 12½ per cent., *one-eighth* part of the total animal heat. For the total quantity of heat given out by the heated body is proportional (from Newton's law cooling) to the elevation of its temperature above the temperature of equilibrium, towards which it tends. If we suppose this equilibrium temperature to be 60°F., then the quantities of animal heat given out in typhus fever and in health will be in proportion of 45 to 40, showing that the animal heat of typhus exceeds that of health by *one-eight* of its amount.

We have already seen that the work due to animal heat would lift the body through a vertical height of eight miles per day; and it thus appears that an additional amount of work, equivalent to the body lifted through one mile per day, is spent in maintaining its temperature at fever heat.

If you could place your fever patient at the bottom of a mine, twice the depth of the deepest mine in the Duchy of Cornwall, and compel the wretched sufferer to climb its ladders into open air, you would subject him to less torture, from muscular exertion, than that which he undergoes at the hand of nature, as he lies before you, helpless, tossing, and delirious on his fever couch.

The treatment of this formidable disease in former times consisted of purging, vomiting, and bleeding the patient, with the view of eliminating an imaginary poison, and so helping nature to terminate the disease.

In modern times, thank God, the physician either does not interfere at all, or adopts the rational process of retarding the disintegration of the tissues consumed to supply the fever-heat, by furnishing in their stead fuel, in the form of wine and beef-tea, sufficient to maintain the increase of temperature imperiously required. This practice may be justly considered rational, because the condition of the circulation admits of its application, and it is considered good because it has been rewarded with success in the hands of the skilful clinical physician. In concluding this sketch of the prominent symptom of typhus fever, and as an illustration of the eagerness with which every possible combustible in the body is made use of, I may mention, on the high authority of Dr. Stokes, of Dublin, that the very urea excreted by the kidneys is not permitted to leave the body without first paying its tax to fever, by being burned into carbonate of ammonia, thus rendering the urine of an advanced case of bad typhus fever eminently alkaline.

B. *Asiatic cholera.*—This remarkable disease presents, as everyone knows three distinct stages —viz., the premonitory stage of diarrhœa: the stage of collapse; the stage of consecutive fever. The stage of collapse exhibits the following symptoms:—Vomiting or purging; muscular cramps; suppression of bile and urine; lowering of body temperature to 95°F.; extreme prostration of strength; extremities pulseless; and face hippocratic.

When death occurs during collapse, the follow- symptoms are usually found on careful examination of the corpse:—The temperature rises to $103^{\circ}$F.; the muscles give out their characteristic susurrus CCC, and exhibit spontaneous movements; the whole train of symptoms producing the effect of a ghastly attempt at resurrection.[*]

In this disease we have phenomena respecting animal heat the very reverse of those found in typhus fever, the body performing one vertical mile short of its daily work, instead of one mile in excess. The prostration of strength resulting from this deficient combustion is so great, that death is often caused by bringing the patient to hospital in a cab instead of upon a stretcher, by his walking up a dozen steps into his ward, and sometimes even fatal results have followed a sudden effort to sit up in bed to vomit.

The rise of temperature after death, and the continuance of muscular susurrus and motion, tend to prove that the impeded circulation, which is the prominent symptom in cholera collapse, is due to constriction (probably vaso-motor nervous) of the capillaries; in consequence of which the muscles are deprived of their supply of freshly oxidised blood, the result of which is necessarily contraction and cramp, which produces the excessive agony that characterises this disease.

All authorities on cholera, whether their object be to "impede" or to "assist" nature, are agreed that medicines, whether astringent or purgative, are not only useless, but dangerous in the stage of collapse.

It is useless to give alcoholic fuel to restore the loss of animal heat, for there is no circulation to cause the oxidation of the hydrocarbons.

It is equally useless and more dangerous to give opium to check the remaining purging that exists; for if vomiting have ceased, your acetate of lead and opium pills lie as if in the stomach of a corpse, and at the termination of collapse your patient enters upon the consecutive fever, with perhaps a dozen grains of opium in his stomach, placed there like an explosive shell by your ill-timed zeal, and rapidly passes into a comatose condition, from which he never for a moment rallies. His death is always accredited by the registrar to cholera morbus, and not to opium.

Purgatives and emetics[†] in cholera collapse effect the same object as opium, but with greater rapidity. In the stage of blue collapse the chances of life and death are almost exactly equal, and the slightest additional loss of force turns the wavering beam on the side of death. The effects of a brisk purgative or emetic (if they act) upon a patient unable to climb a dozen steps or sit up for a quarter of an hour, without fatal syncope, may be easily imagined, and the use of them cannot be justified by any arguments borrowed from right reason.

A remarkable though transient improvement takes place in collapse by the injection of warm water (brought to the specific gravity of serum by the addition of mineral salts) into the veins or bowels. The patient loses the cramps, feels that he is about to recover, speaks to his friends, and often transacts whatever business is necessary, but speedily falls back into collapse. The improvement in his condition is altogether due to the temperature of the fluid injected, which supplies for a brief period the deficient animal heat, permits a partial oxidation of the blood, restores the capillary circulation in the muscles, and so destroys their cramp, and by supplying the deficient work required, removes for the moment the fatal prostration of strength. Anyone who has witnessed the remarkable effects of warm liquids thus injected in cholera collapse must feel that recovery would be certain if the improvement could by any possibility be made permanent.

Our hopes for the future as to the treatment of cholera lie, as I believe, in the direction of supplying to the body, directly, its lost animal heat. I have witnessed the happiest results from an injection of warm salt water into the bowels, assisted by hand friction of the surface with turpentine and chloroform, and the application of bags of hot salt along the spine. In cases treated in this manner we may expect to witness cessation of muscular cramp, restoration of perspiration to the skin, with increase of capillary circulation, and finally, to reward our efforts, a return of the excretions of urine and bile; when these reappear, all vomiting and purging cease, and our patient is almost cured.

After recovery the contrast between the cholera and the fever patient is as great as it was during sickness. The fever patient has been overworked for nine or fifteen days without a suitable supply of food, and when convalescent, experiences a complete exhaustion of strength that lasts for many weeks. The cholera patient, on the other hand, has been prevented from working, by constriction of the capillary vessels, caused by the absoption of the cholera poison,[*] and feels, on recovery, much like a man that has been half drowned, while the fever patient resembles a man that has been half starved; the one is able to return to his work in the course of a few days, the other only after the lapse of as many weeks.

There are two popular superstitions prevalent among medical men respecting Nature, which yearly slaughter hecatombs of victims—viz, that Nature is simple in her operations and beneficent in her intentions. She is often both simple and beneficent, but at other times she is unquestionably both complex and malevolent.

An Egyptian fable informs us that the votaries of goddess Nature were divided in opinion as to whether she was transcendently beautiful or hideously ugly, and that, in order to keep up this difference of opinion, which suits her purpose, she always wears a thick vail over her face.

> "For, with a veil that wimpled everywhere,
> Her head and face were hid, that mote to none appear;
> That, some do say, was so by skill devised,
> To hide the terror of her uncouth hue
> From mortal eyes that should be sore agrised;
> For that her face did like a lion show,
> That eye of wight could not endure to view;
> But others tell that it so beauteous was,
> And round about such beams of splendor threw,
> That it the sun a thousand times did pass,
> Nor could be seen, but like an image in a glass."

Before trusting Nature in the matter of cholera, and proceeding to help her, it would be well to inquire whether she intends to cure the patient by her evacuations, or to put him into his coffin. For myself I greatly mistrust her, and would wish to ask, previous to assisting her, whether she is really my mother or only my stepmother. Our experience in Dublin has shown that no more effectual mode of shortening life could be devised in cholera than the "eliminant" treatment; and it was accordingly abandoned as soon as tried in that city.

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[*] It is startling, on making a post-mortem examination of a cholera patient alone, and by candle light, to witness, on the first free incision of the scalpel, the hand of the corpse rise slowly from its side and placed quietly across the breast.

[†] When mustard is used, its conservative effects as a stimulant sometimes counteract its destructive effects as an emetic.

[*] Whatever this may be, its period of incubation is forty-nine hours; that of strychnine is twenty-two minutes.

It is much to be regretted that an authority so deservedly held in high repute as that of Sir Thomas Watson, can be now quoted in favor of the treatment of cholera by the maxim, "Similia similibus curantur." So far as Dr. Watson has informed us, his change of opinion rests upon the statement of others, and not upon his own experience. He has suddenly become an advocate of the castor-oil, rhubarb, calomel, and eliminative treatment of cholera, and writes as follows:—

"When I last spoke on this subject in these lectures I stated that the few recoveries which I had witnessed had all taken place under large and repeated doses of calomel, but I could not venture to affirm that the calomel cured them. At present I am much disposed to believe that by its cleansing action the calomel may have helped the recovery; and after all that I have since seen, heard, read, and thought upon the matter, I must confess that in the event of my having again to deal with the disorder, I should feel bound to adopt, in its generality the evacuant theory and practice."

Sir Thomas Watson omits to add that the cases here referred to were only six in number, of whom three died and three recovered, which is exactly what might have been expected if he had not interfered at all.

Cholera from Bengal visits these islands at intervals of about seventeen years, and it is much to be feared that on its next outbreak hundreds of patients will be sacrificed, in obedience to the dogma that asserts it to be our duty to assist Nature.

C. *Diabetes mellitus.*—This disease furnishes us with one of our best proofs that all the chemical changes, by means of which work is produced, take place in the blood and not in the tissues of the body; and, at the same time, an examination of its phenomena explains satisfactorily the regimen and diet which has been found by experience most suitable to the diabetic patient. I shall illustrate the disease by a case which was placed under my control by Dr. Stokes some years ago.

A young man, aged twenty, named Murphy, suffered from fever (enteric?) in November, 1859, and on recovering became diabetic. He was admitted into the Meath Hospital in October, 1860, where he remained under my observation until his death on the 12th of January, 1861.

He was allowed for nine weeks to eat as much as he liked of certain kinds of food, which were varied week by week to suit his wants, my object being to obtain, if possible, the natural constants of the disease, undisturbed by external interference; the only medicine used by Dr. Stokes's order being opium, to produce sleep, and a little kreasote occasionally, to promote digestion. As the details of this experiment have been fully published, I shall confine myself to the final results. His food and excretions were analysed from week to week, so as to determine the total quantities of sugar-forming and urea-producing food, as well as the sugar and urea actually excreted.

During six of the nine weeks the sugar excreted was in excess of the sugar ingested, and the means of the daily excretion and ingestion of sugar were—

| | |
|---|---|
| Sugar excreted ... ... | 9773 grs. |
| Sugar ingested ... ... | 9321 „ |
| Diff. ... ... ... | 452 „ |

During two of the nine weeks of observation the urea excreted was in excess of the urea ingested, and the mean daily excretion and ingestion of urea were—

| | |
|---|---|
| Urea excreted ... ... | 1182 grs. |
| Urea ingested ... ... | 1349 „ |

The foregoing facts illustrate strikingly one of the prominent symptoms of diabetes—viz, the canine appetite: the quantity both of sugar-producing and urea-forming food consumed is more than double what is necessary to maintain a vigorous laborer in perfect health. An examination of the excretions explains the other prominent symptom of diabetes—viz, the complete prostration of strength in the patient, notwithstanding great amount of food consumed.

In a state of health, food produces three excretions only—viz., urea, carbonic acid, and water. In diabetes, the farinaceous foods appear in the excretions as sugar, and not as carbonic acid and water; and the work necessary to maintain animal heat must be provided altogether at the expense of flesh food, which is the very form of food least fitted to maintain it.

The diabetic patient resembles a racing steamboat on the Mississippi whose supply of coals is exhausted, and whose cargo furnishes nothing better than lean pork hams, to throw into the furnace, to maintain the race. It cannot be wondered at, that our poor patient, under such disadvantageous conditions, fails to keep in the front.

Let us compare together the minimum of work necessary to keep Owen Murphy alive, with the work actually supplied to him by the food digested.

1. I have already stated that Dr. Ranke, found 660grms. of carbonic acid in the extreme fasting condition, when he weighed 67 kilos. Now since

660 grms. = 10185·35 grs.
67 kilos. = 147·71 lbs.

we find 69 grs. per lb. of body weight as the minimum excretion of carbonic acid consistant with continued life.

This quantity of carbonic acid represents a work, generated by its production that would lift its corresponding pound of body weight through a height of

$$69\times\frac{6}{22}\times 8080\times\frac{9}{5}\times\frac{772}{7000\times 5280}=5{\cdot}716 \text{ miles.}$$

Under ordinary conditions, the greater part of this carbonic acid and work is produced by the digestion of farinaceous food; but since, as we have seen, the farinaceous food is excreted as sugar in the diabetic patient, and therefore does no work at all, the whole of the foregoing work must be done by the digestion of other kinds of food.

I have already shown that it follows from Lavoisier's experiments (confirmed in a remarkable manner by those of Regnault) that the work done by the combustion of carbon in the body is to the work done by the combustion of hydrogen in the proportion of 9068 to 3024, almost exactly

3 to 1; hence we have the work done by Owen Murphy, as a minimum in health,

Due to carbon ... ... 5·716 miles.
Due to hydrogen ... ... 1·905 "

7·621 "

This result is somewhat in excess of the truth, for the same reason that the calculated *digestion coefficient* of proteine is in excess of that found by Frankland from experiment; for the combustion coefficients of carbon and hydrogen, in organic compounds, are slightly less than when free. If we are permitted to reduce 7·621 miles in the same proportion as in the digestion of proteine—viz., 48 to 43, we shall find—

Owen Murphy—minimum of work consists of body weight lifted through ... ... 6·83 miles.

Let us now compare this minimum with the work actually performed by him when suffering from diabetes, by the digestion of flesh food and production of urea.

2. I have already shown that the work produced by the formation of 501·28 grs. of urea is 704 ft. tons, by calculation from the composition of proteine and urea. This result should be reduced in the proportion of 48375 to 43155, in order to obtain the work given by Professor Frankland's experiments. Making this reduction, we find that 500 grs. of urea correspond to 626·3 ft. tons of work, or 100 grs. urea to 125·26 ft. tons; or in other words—

*Every four grains of urea excreted correspond to five tons lifted through one foot.*

Owen Murphy excreted, on an average, 1182 grs. of urea daily during nine weeks, which, by the foregoing rule, are equal to

$$1475 \text{ ft. tons} = \text{Murphy} \times x;$$

where $x$ represents in miles the height through which the patient could be lifted by the work done per day; and is equal to

$$x = \frac{1475 \times 2240}{93{\cdot}56 \times 5280} = 6{\cdot}69 \text{ miles.}$$

This result is almost exactly equal to that already found as the minimum consistent with continued life, and explains in the most satisfactory manner the complete prostration of the patient, notwithstanding the consumption and digestion of more than double the usual quantity of flesh food.

In corroboration of the foregoing conclusion, I may mention that Murphy's temperature was found to be constantly 2° F. below that of other patients (chronic) placed in the same ward, and, in other respects, under similar conditions.

His unfavorable symptoms (so long as his powers of digestion were not impaired) were invariably alleviated by the free use of flesh food and fat, the latter being instinctively preferred by him; so much so that, during the delirium that preceded his death for twenty-four hours, he raved incessantly about "fat, roasted fat, which the angels of heaven were preparing for him."

I have studied many other cases of diabetes mellitus, and found similar results in all; but I feel it to be unnecessary to describe them, as one well-ascertained train of phenomena, carefully observed and recorded, is quite sufficient to establish the order of nature.

### *Conclusion.*

I have now, Mr. President and gentlemen, to apologise for the length of time during which I have spoken, and to thank you for the patience with which you have listened to me. I am well aware how much I am indebted to your kindness, for I labored under two serious disadvantages in addressing you: in the first place, I had undertaken a task beyond my strength; and, again, my address is made shortly after you had, like myself, been charmed and instructed by the luminous, learned, and eloquent oration of Professor Rolleston. I feel confident, however, that I possessed one advantage that he did not: I was a stranger in Oxford, and believed that my faults in matter and style would be leniently critised. In this expectation, I am happy to say, I am not disappointed; and again I thank you for your kindness. Two other advantages I share with him which have contributed to his address as much as to my own—a profound respect and reverence for all honest laborers in search of truth, whether they have preceded us by 20 years or by 2000 years; and an unwavering confidence and faith in the future that lies before the science of Medicine. We traverse a sea, mapped with imperfect charts, carrying with us a sure guide in our compass and stars; but we cannot afford to neglect a single rock or shoal, buoyed for us by the skill and care of those that have preceded us. Let us follow their example, and mark with conscientious care for our successors the dangers we ourselves discover and escape.

Assembled as we are within the walls of the University of Oxford, the centre and heart of all that is intellectual and religious in the life of England—a University that borrows its accurate logic, as well as its refined ethics, from the lips of Aristotle; that reverences Euclid as the fountain and source of its elegant geometry; and sits at the feet of Homer, Pindar, and Eschylus, to learn its poetry,—we need not fear that Hippocrates and Galen will ever want admirers and students; but the Oxford of to-day has taught us, what many did not anticipate, that she is equally ready and skilful, as she has proved herself to be in cultivating literature, to devote her vast intellectual energies to the encouragement and development of the natural sciences, based upon the solid and only permanent foundation of mathematical research. The efforts made within the last few years by Oxford to encourage within her walls the mathematical and natural sciences have won for her the respect, and warmed towards her the hearts, of all that search for truth in the study of nature. Our brothers in Oxford, like the Athenians at Syracuse, have gone on board the fleet, while we watch them, from the shore, sympathising in the sea fight: as they win, we shout; when they fail, we weep.

Long may the union of the far distant but never to be forgotten past with the living present, that now exists in Oxford, continue. No science, no profession, can benefit so much by it as that of Medicine.

# Clinical Lectures

# ON DISEASES OF THE URINARY ORGANS.

*Delivered at University College Hospital.*

By Sir Henry Thompson,

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Professor of Clinical Surgery, and Surgeon to
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## LECTURE XI.

### DISEASES OF THE BLADDER; PARALYSIS; ATONY; JUVENILE INCONTINENCE; TUMOURS.

Gentlemen,—On two occasions recently a patient has been sent to my ward affirmed to have "paralysis of the bladder;" such, at least, is the statement that accompanied them here. On examining one of them we found a not unhealthy-looking elderly laboring man, from whom, by much questioning, we elicited the following facts; that he was nearly sixty years of age; that he has passed his water much too frequently for four or five years; that he was much disturbed at night to do it, although lately it has come away without his knowledge during sleep; that when he makes an effort at work the same thing often happens; that the stream is weak, falling almost perpendicularly; that he has "no particular pains," but is not so strong as formerly, having become much weaker of late; and that for the last few months the urine has been cloudy and has had a disagreeable smell. With all this his ordinary functions has been fairly performed, and he had followed his daily labor until three weeks ago.

The man was desired to unfasten his dress; as he did so you remarked a urinous odor, and that certain cloths which did duty for an india-rubber receptacle—a luxury beyond the means of our patient—were wet with the secretion. Two conditions only could cause this unhappy state of things: either the bladder was incapable of doing its duty as a reservoir, and permitted the urine to escape as fast as it entered from the ureters, or it was unable to expel its contents, so that it was over-distended by them, the surplus oozing out, or being forced out, in the manner described.

Now a glance of the eye might have nearly sufficed to settle this question. I pointed out a marked protuberance above the pubic symphysis; and after placing the patient on his back, the dulness by percussion corresponding with that spot, and the clear bowel-note all round, diminished the doubt as to its nature, if any yet existed. Still, this was not quite all that it was necessary to know; it was just possible that the swelling might be a solid tumour of the bladder, occupying its proper space and much more, and so destroying its function as a reservoir. To the hand, however, the protuberance was clearly made up of fluid; but even this is short of absolute demonstration, for the most practised hand has been known sometimes to "lose its cunning," or to have found a too deceptive quality in the object handled. Finally, you saw that a well-curved gum catheter glided into the bladder, and upwards of 40 oz. of somewhat stale urine flowed off. I then examined the prostate, and found no very obvious enlargement.

Now, was this a case of "paralysis of the bladder"? Certainly not. His history showed that he had had no seizure of any kind; and I beg you to understand that without some change in a nervous centre there is no paralysis of the bladder. This term is applied, or rather misapplied, every day to such cases as the one before us, and with the result not merely of masking the true pathological state, which ought always if possible to be indicated by a nosological term, but of misleading the inquirer, since it indicates a condition which by no means exists.

What, then, is the defect or disease occasioning the symptoms in this case? Probably, atony of the bladder; I will speak presently with more precision. The bladder fails to expel its contents in the two following conditions: either a growth from the prostate, by no means necessarily large, obstructs the neck, so that the natural power of a healthy bladder—which may, moreover, have been reinforced for the difficulty, by hypertrophy of its fibres rendering it stronger—cannot propel the urine by or over the obstruction into the urethra; or these muscular fibres of the bladder are so enfeebled, or even atrophied, that their propelling power is lost or greatly diminished, and the organ becomes a thin flaccid bag, and can exert no expulsive force upon its contents.

The two conditions sometimes coincide. We may have hypertrophy of the bladder following obstruction from stricture of the urethra. On the other hand, with obstruction from the prostate, the vesical coats sometimes extend and become thin. But atony may be produced without any disease of the prostate, and then mainly from the subject of it having been placed in circumstances which obliged him to retain his urine for a too considerable period, so that the bladder became over-distended, and has failed subsequently to regain its tone. Unfortunately, a single error of this kind will sometimes produce an irremediable atony.

Now on further questioning our patient we did not find that he could recall any such instance, nor that he ever formed the habit of permitting such over-distension. Neither did the affection occur suddenly; on the contrary, the symptoms appeared gradually. What is still more significant is, that they occurred just at that time of life when prostatic hypertrophy commences, if it appears at all. Still, the prostate was not obviously large on examination by the bowel. We arrive, then, at the following conclusions:—That this man has some enlargement of the prostate, which, though not obvious in the rectum, consists in a small nipple-like projection of the median portion, occluding the neck of the bladder, and that, from the size of the bladder, as just now demonstrated by percussion, and by its contents, its walls are thin, and have lost their contractile power; in other words, are in a condition of atony.

I think there is no escape from these conclusions, and I beg that you will not only never permit yourselves to allude to this condition as "paralysis," but that you will protest against so loose and improper a use of the term when you hear it thus misapplied by others. Now true paralysis of the bladder occurs from injury to the spine, and also as one of that large group of symptoms which result from disease in the cerebral or cerebro-spinal centres. You find it associated with slightly unsteady gait, with impaired articulation, or with some of the slighter signs of such central mischief, as well as with those which are most obvious; and I have even found it persisting after all other signs have nearly—I cannot say quite—disappeared.

In all cases, as in that of this patient in the ward, it is essential to empty the bladder by means of the gum catheter three or four times daily, to remove the urine completely, and at least to offer the possibility of reacquiring power to the muscular coat, which does not exist so long as that coat remains constantly distended by the retained urine.

Next, for pure atony and for slight paralysis, uncomplicated with prostatic enlargement, a little aid may be sometimes afforded to the patient through the agency of electricity by cold douches and injections, and by tonics; but less advantage is to be derived from these means, in my opinion than some have appeared to believe, although I by no means say these are not sometimes serviceable. I have seen an increase of expulsive power attained rapidly during the daily application of an electro-magnetic current to the bladder, and in the following manner:—To one pole the ordinary handle and moist sponge are attached, which is placed over the lumbar vertebræ; an elastic bougie, containing a conducting wire, and tipped with metal is attached to the other pole, and is introduced into the bladder. A weak current is set going, and its effects watched. Thus a slight sensation only is to be produced. Move the bougie about gently in contact with the walls of the bladder, the urine having been just withdrawn; and, finally, let it rest a little in the neck of the bladder, where greater discomfort is felt: in all allowing the current to pass for eight or ten minutes before withdrawing.

A very different condition to that just described sometimes results after severe lesion, and also after local injury—viz. inability on the part of the bladder to act in any way as a reservoir. In this unfortunate situation the urine leaves the organ by the urethra as fast as it enters by the ureters. This is complete incontinence, in the true sense of the term. Little else than mechanical contrivances are of any avail. And these consist in making a reservoir outside instead of inside the body; one which can be emptied at the patient's will. Happily such cases are very rare.

But there is a partial incontinence which is very common, and which is, moreover, amenable to treatment. You will be consulted by an anxious mother who, bringing her boy or a girl of any age below puberty and occasionally above that period, tells you that every night, or nearly so, this young person wets the bed. Examples of this are very frequently seen in my out-patient room. You know that, in a child with a busy excitable brain, muscular movements occur during sleep of a much more active character than those which usually occur in the adult, or in children of more placid temperament. Anything up to somnambulism may take place during sleep in a child whose *physique* is weak and the slave of a restless, ceaseless activity of mind; and micturition during sleep often occurs in connexion with this state. Clearly, however, not only in such cases; for in some very dull and stupid children, in whom intelligence appears to be below the average, the same thing may happen. And it must also be admitted that there are cases which do not fall into either of these classes. For such unfortunate patients all sorts of remedies and all kinds of management are adopted, including even a periodical employment of the birch—a species of the "cytisus" which I trust you will never admit into your own therapeutic scheme. Depend upon it that "punishment" for this form of youthful frailty will not answer; and whatever of morality may be taught in obedience to the ancient injunction not to spare the rod—a question beyond our province to discuss,—do not regard it as binding on us who practise the healing art. The child's attendants often lose patience at the perpetual recurrence of the disagreeable infirmity, and believe it to be the result of wilfulness or of carelessness. I have seen much cruelty practised, even by the nearest relatives of these unhappy offenders. Give it no countenance whatever.

Now for treatment, briefly, and as much as I can on general principles. For class the first, you will cultivate the physical side of life: remove as much as possible the sources of over mental stimulation; strengthen the constitution through the agency of diet, country air, or sea-bathing if possible, and give steel wine and cod-liver oil. For class the second—those of torpid and deficient intelligence,—you must show the importance of developing mind. Endeavor to call the will into play as much as possible, and enlist it to aid you in preventing the act. These are the children who are usually ill-treated; instead of which they must be made sensible of the degradation of the habit, so as to get a stimulus for volition in relation to it. Here remedies which act specifically on the organs are most appropriate. First and chiefest, belladonna; which apparently paralyses the expulsive muscles of the bladder and the sensitiveness of the organ at the same time. Thus in elderly people who have feeble power to expel the urine, a dose often produces complete retention, and that for some time unaccompanied by consciousness of inconvenience from it. You give small doses, say of the tincture, in the afternoon and evening, increasing gradually when it may be necessary; and if the bladder is thus made to retain the urine all night for a few weeks, on relaxing the dose gradually the habit of retaining is found to be formed and to persist. This remedy is so excellent a one that it has almost superseded blisters to the sacrum and such counter irritants. After it, nux vomica may be tried. Then, for confirmed cases, after the failure of other treatment especially for those who have arrived at puberty or thereabouts, a mild caustic solution to the prostatic urethra—say ten grains to the ounce of water—has answered in my hands; to be repeated with a stronger solution if necessary.

In all cases inquire carefully for derangements of digestion, in all its stages, from primary stomach symptoms to worms in the lower bowel—not unfruitful in their adverse influence. Of course you will take care that the child has not too much fluid, nor takes too much of solid food containing much water in its composition, during the latter third of the day; and that it is taken up to pass water late in the evening when its attendants go to bed.

A short sketch of Tumours proper to the bladder will finish this part of our subject. Of course you are to understand that all those outgrowths from the prostate which come under the head of hypertrophy, since they are more or less composed of structure identical with, or very similar to, that composing this organ, however much they may project into the cavity of the bladder, are not to be included in the present class.

Tumours proper to the bladder are of rare occurrence. I wish you to know what they are—what it is possible you may meet with so that you may have the chance of recognising an example if it falls in your way. As with those in other parts of the body, they are classified according to the amount of which they manifest to invade surrounding structures, or to reproduce themselves elsewhere. Thus—First, we have simple fibrous growths, chiefly the form of polypi, springing from the walls of the bladder, and wholly unassociated with the prostate; the rarest of all forms—in short, exceedingly rare, known to me personally only in museums.

Secondly, there is the "villous or vascular tumour" of the bladder, miscalled "villous cancer;" for it has no invading or reproductive power beyond the organ in which it arises.

Thirdly, there is epithelioma—the lowest type of malignant formation and slowest of development.

Fourthly, true scirrhus occurs in the walls of the bladder; and, much less commonly, encephaloid.

Now, putting the first form out of the question, it may be said in general terms of all the rest, that the single and most certain characteristic of the presence of a tumour is ***persistent vesical hæmaturia***, no calculus or other obvious cause existing.

But never arrive hastily at the conclusion in your own mind, nor even too readily admit the suspicion that tumour is present: for you will remember, in the first place, that it is exceedingly rare, compared with other causes of similar symptoms; and, secondly, that there are no positive signs, or almost none which can be so regarded, of its existence. It is by a long process, and after much careful watching of any case, and consequently only when the disease is in a somewhat advanced stage of development, that you can, ***per viam exclusionis***, conclude with some reason that a tumour is present. The symptoms are almost identical with those of calculus, and the patient is certain to be sounded more than once or twice before the tumour is ever suspected. Suppose, then, that you have verified the absence of stricture, of prostatic enlargement, of calculus, of primary renal disease, and you are at a loss to know why your patient passes water with great frequency and pain, the secretion containing more or less muco-pus, and having blood in it often or continuously, the quantity of which is increased by exercise,—you direct your inquiries to the existence of vesical tumour. And you will proceed thus: First, you will introduce into the bladder the short-beaked sound, and with a finger in the rectum you will carefully explore the thickness of the structures intervening between the finger and the sound. Next, the sound being still in the bladder, you will not find much difficulty, provided the patient is thin, in gaining some information of a like kind by palpation above and behind the pubic symphysis. Further, by movements of the sound itself you may detect a hard mass of scirrhus on either side of the vesical walls, the sound not turning over readily to the left or right, as the case may be. You will not discover a villous tumour thus, for it is much too soft, and will elude the most delicate traversing of the cavity which can be achieved. Even an epithelial growth, which is usually wide in its base, of flocculent surface, and sprouting into the cavity, although not very luxuriantly, is so deficient in induration as not to be readily discoverable. It scarcely destroys the flexibility of the vesical coats, which is the fact you have to ascertain.

Next you may search for enlarged glands in the iliac regions, but they are palpable only in advanced cases of scirrhus, and you will obtain such light on the subject as a search for cancerous growths in other parts of the body may afford you. Thus, not long ago I had my diagnosis of cancer of the bladder in the case of an elderly patient made certain by the appearance of a secondary growth springing from the cranium.

Again, you will repeatedly and carefully examine the deposits in the urine for the appearance of organic materials cast off from the growth, which may serve to indicate its nature. Thus I have detected under the microscope the peculiar structure which the processes of the villous tumour present to the eye. But what of the cells of epithelioma, and what of "cancer cells"? I am compelled to resign to others—and I am well aware that several writers on this subject have proclaimed the value of microscopic examination of the urine in vesical cancer—the good fortune of identifying malignant disease by this means. First, suppose you have caught your "cancer-cell," are your prepared to swear to its identity? As students, I will assume you have examined, say a few hundred specimens of urine, not many, but enough, at all events, for my purpose, and that you have, therefore, not a little perplexed yourselves, if you are of an inquiring turn, with all that fruitful progeny of cells, epithelium of different parts and in all stages of growth, &c., which are desquamated in health, but especially under the influence of any morbid action in those passages, and which appear therefore in the urine. Some of the best "cancer-cells" I ever saw in my life were collected from a patient's urine, and placed under the microscopic by an eminent microscopic observer for the purposes of a very important consultation at which I assisted. After a careful examination of the patient I admitted the beauty and perfection of the microscopic observation, but on larger grounds denied the existence of cancer in the bladder; and the ultimate result, happily for the patient, confirmed that view, and disproved the cell. Most valuable as is the microscope in this great class of maladies, ranking next, and very near to, the sound itself, never let it obscure for you those broad features of the case which are to be determined by the unassisted eye and touch. as applied to the body, and to the urinary secretion itself through the means of reagents.

Lastily, you will, in endeavoring to determine the particular kind of growth, observe the nature of the hæmorrhage and the character of the pain. In malignant disease the hæmorrhage is irregular in its occurrence, long intervals being sometimes observed in which no bleeding appears; and when it does take place it is often in considerable quantity, and it may persist for some time; moreover the blood is usually of a florid color. In villous growths the urine is generally more persistently colored, and presents a reddish tint resembling the juice of raw meat—not dark or smoky in hue; occasionally, however, rapid and considerable hæmorrhage takes place. The pain of cancer is more constant and severe than that of villous growth, the latter not being necessarily accompanied with great pain, unless obstruction to the outflow of urine is produced by the tumour.

What shall I say here respecting the treatment of vesical tumour? That it must be shaped according to the existence or predominance of certain symptoms, which may be regarded as three in number: hæmorrhage; painful and frequent micturition; retention of urine.

For the treatment of hæmorrhage, I have little to say for the internal astringents; I mean those administered by the mouth, as gallic and tannic acids, lead, alum, matico, &c.; the last-named being perhaps the best. I know nothing so valuable as injections into the bladder of nitrate of silver, commencing with a very weak solution. But for the local treatment of vesical hæmorrhage, never forget how essential are delicacy and gentleness in all your manipulations, otherwise you will provoke hæmorrhage rather than restrain it.

For alleviation of pain or frequency of micturition do not spare opiates—trying any form, or all forms in turn, until you find that which most assuages it and least disturbs the digestive organs. Give them by mouth, subcutaneously, or by suppository. Never mind how much in order to act effectually. It is not a question of saving life but a question of mitigating that most frightful of human miseries—prolonged, continuous, severe bodily suffering; and this for a patient whose doom is certain, and to whom life has come to be for the most part a dire calamity. While you are bound therefore, on the one hand, jealously to guard life, I hold that you are equally responsible, on the other, that it shall be rendered fairly endurable. I confess that I have felt sometimes almost indignant at the sight of a poor fellow-creature worn out with anguish, praying for death, who, thanks to a well-meaning but weak timidity, is permitted only such small comfort as fifteen or twenty minims of liquor opii or of a solution of morphia once or twice in the twenty-four hours can afford.

For the relief of retention, such catheterism must be applied as the case requires, whether periodically or continuously, as the comfort and the exigencies of the patient render desirable.

I shall close this course with a lecture on "Hæmaturia." which will permit me to glance at most of those subjects which have not yet come under our consideration.

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## LECTURE XII.

### HÆMATURIA AND RENAL CALCULUS.

Gentlemen,—I propose to-day to complete the programme I originally designed for this course by considering a phenomenon of common occurrence known as hæmaturia.

Let us define the term. What is hæmaturia? The outflow of urine containing blood in admixture. Thus bleeding from the penis at other times than at that of micturition is, of course, not hæmaturia. Bleeding coincident with micturition from chordee, or operation, or from any known injury in the course of the urethra, is also not to be included. The blood then usually issues by the side of the stream of urine, and is only partially mixed at its line of contact, or it may follow rather than accompany the urine.

Hæmaturia, then, is a symptom. Its presence is, in all cases of urinary disease, to be sought. Hence the inquiry forms one question—the third —of the necessary four which I instructed you always to ask in forming a diagnosis. Here is a glass of urine, evidently containing an admixture of blood. What is the source of it? Now it is often not an easy thing to state at once what point of that long and complicated organic apparatus, which commences in the Malpighian corpuscles and ends at the external meatus, is the source of the blood in question. Sometimes it is exceedingly difficult to define its source. Thus it is that in medicine you will often find some symptom, the pathological cause of which is not very obvious, getting a specific name which comes at length to denote a distinct disease; and just as you will be asked, as I told you the other day, what is good for dropsy, you may also be asked what is good for hæmaturia.

Now, the consideration of this question, besides affording us new material for inquiry, will bring us over some of the ground we have already travelled together. I don't regret that—for your sakes, I mean. It will stand in the same relation to the past as the arithmetical "proof" does to the already worked sum. It is in some respects a synthetical operation following an analytical one. When therefore you see a specimen of urine containing blood, you will, as a matter of course, make a rough mental note of the proportion of blood present, and you will mark the color. And as you can count on your fingers the ordinary sources of blood, these will pass rapidly in review at the same time. Let us name them as follows:—

1. The kidneys, where it may be from diseased action, more or less temporary, as inflammation; or from disease more or less persisting, as degeneration of structure; or from mechanical injury, as from calculus there, or by a strain, or a blow on the back. If the hæmaturia is the result of inflammation, there will be general fever denoting its presence; if produced by slow organic change, there will be the history of failing health, and probably urine changed in quality otherwise than by the mere admixture of blood. Where blood is in very small quantity, as it will naturally be at times, note the character of the urine proper—whether of low specific gravity, pale, with albumen in greater proportion than blood or pus will account for; perhaps renal casts may be found; and look out for dropsies in any degree. In both the preceding forms, if blood is present it will give the smoke tint to the secretion. Perhaps it may be affirmed that such urine, associated with very little if any local pain, is more likely to come from the kidney than elsewhere. In malignant renal tumour blood may be large in quantity at times: the rapidity of growth, and the size attained, are the marked characteristics of the disease. If mechanical injury be the origin of hæmaturia, there will be the history of

a blow or strain; or there may be the signs and symptoms of renal calculus, of which more detail presently.

2. Then, putting aside the ureters, you will remember the bladder as the second source of hæmorrhage; and here it may be due to some acute cystitis, stone, or tumour. The former is obvious enough from muco-pus in the urine, and through other signs; while the second may well be suspected by the symptoms, and its presence realised by the sound. Here the hæmorrhage is usually florid, and in proportion to the patient's movements. But the third condition—namely, that the hæmorrage arises from tumour—is not always so readily to be affirmed. As a rule, however, blood from such a source is larger in quantity than from stone, and may be associated with less of muco-pus. If the tumour is malignant, it may be felt, and the pain is often severe; if villous, it gives an even pale-red tint for days together to the urine; and in both cases the blood is florid, unless it is long retained in the bladder, when dark sanies, like coffee-grounds, results.

3. In hæmorrhage from the prostate, the third principal locality or source, the same thing occurs, if the organ is hypertrophied and the blood is retained; but here the age of the patient, and the ascertained condition of the organ from the bowel, aid the diagnosis. A slight appearance of blood mixed with the last few drops of urine is a not rare occurrence in chronic prostatitis.

4. When bleeding arises from stricture of the urethra, the patient's history and the cause of the bleeding, almost always instrumental, leave no room for doubt. From the use of instruments also in the bladder hæmorrhage sometimes arises. Then it is not to be forgotten that occasionally blood is found in the urine as the result of violent diuretics, from purpura, in fevers, and in a hæmorrhagic diathesis.

Now for the treatment of hæmorrhage. When you have determined that its source is above the bladder—that is, in the kidney or in its pelvis, probably the first and most influential remedial agent is rest in the recumbent position. Whether from a lesion affecting the intimate structure, or from the mechanical irritation of a calculus in any part of the organ, rest is the first and the essential condition. The patient is, moreover, to be maintained in as cool and tranquil a state as possible.

It is in renal more than in any other form of hæmaturia, perhaps, that direct or internal astringents or styptics are useful. I shall do no more than name those which are most commonly used—namely, gallic and tannic acids; lead and turpentine; equal to them is, I think, the infusion of matico, say in doses of two ounces every two or three hours. The tincture of iron and also sulphuric acid may sometimes be taken with advantage.

It is, however, in cases of severe hæmorrhage from the bladder, or more commonly from an enlarged prostate, that active and judicious treatment is necessary. You will be called sometimes to a patient whose bladder is distended with coagulated blood, or who is passing frequently a quantity of fluid in which blood is the predominating element. Usually this has arisen from some injury inflicted by the instrument, although it may also be from tumour of the vesical walls. Here you will keep the patient on his back, and forbid the upright position, or any straining, so far as you can prevent it, in passing water. To this end give opium liberally, to subdue the painful and continued action of the bladder. Apply cold by means of bags of ice to the perineum and above the pubes. Better still, introduce small pieces of ice into the rectum. Do not use an instrument if it is possible to do without it. There is a great dread in some people's minds about the existence of a large coagulum in the bladder. I have even known a bladder to be opened above the pubes by the surgeon for the mere purpose of evacuating a mass of clotted blood. Leave it alone: it will gradually be dissolved and got rid of by the continued action of the urine; while if you are in haste to interfere, and are very successful in removing it, you will succeed also most probably in setting up fresh hæmorrhage. The bleeding vessels have a far better chance of closing effectually if they are not subjected to mechanical interference. Meanwhile support the patient's powers by good broths, &c.

But it sometimes happens that hæmorrhage occurs in a patient who has long lost all power of passing urine except by catheter. This is a very different position. Here the coagulated mass which fills the bladder must sometimes be removed, or no urine can be brought away. Thus, you introduce a catheter and none appears, for the end of the instrument passes into a mass of coagulum, and nothing can issue. Sometimes sufficient may be removed by attaching to a large silver catheter a six-ounce syringe or a stomach-pump. Clover's lithotrity apparatus has answered remarkably well with me in two or three instances. Let me caution you never to inject styptics into the bladder; the irritation does more harm than good.

In passing to another subject I beg to call your attention to a glass before you containing some urine of a dark and somewhat unnatural tint. Let us interrogate the case of the patient from whom it came. In obtaining this specimen I took care that he should first pass about an ounce into a separate vessel to clear his urethra—a precaution always absolutely necessary to avoid error, as I have before warned you—and the remainder into this. It is less translucent than average healthy urine is, and has a deeper color. The hue is not red, but slightly orange, with a dirty brownish tint, commonly and very well distinguished by the work "smoky." That tint denotes blood to an ordinarily practised eye. Why is it not red? Because blood after a certain term of contact with urine loses its red color and becomes brown; and you see it in that condition, or according to the quantity, producing any depth of hue from this up to that of London porter. Put it under the microscope, and you will find plenty of blood-corpuscles. We get this broad principle, then, to start with: bleeding from the more distant parts of the urinary system, unless in very large quantity, will almost certainly make the urine brown, while urine which contains red blood has almost certainly issued recently from some source in the bladder, probably at or near its neck, these being the more common sites of vesical hæmaturia.

In the case before us, then, we proceed easily and rapidly to elimininate many of the sources of bleeding by physical exploration, and by the account which he gives of his sensations. He makes a good stream when a fair amount of urine has accumulated in his bladder, but this does not often happen, for he passes it every two hours or less in the day, not so frequently at night; no straining is necessary. Pain in the course of the urethra is experienced during and after micturition; not severe. He is uneasy about the pelvis and loins on taking exercise, and more blood passes afterwards. He is somewhat emaciated and so presents a good condition for examination by the hand. He is subject to variation in the intensity of the symptoms, having now and then attacks of a few days duration, in which they are aggravated, and he dates their commencement in an attack which occurred seven years ago. His age is forty-five years. He has never passed gravel. He is much less robust than formerly; his digestion is not good. A full-sized bougie passes easily into the bladder; no stricture; hypertrophy of prostate at his age not possible. On sounding he is manifestly more tender than usual; nothing is felt, nor any deviation from the natural condition by simultaneous examination by the rectum. Palpation of lower part of abdomen shows nothing. Arriving close under the last ribs of left side with one hand, the other pressing firmly on left renal region, he flinches unmistakably; that is the spot, he says where he feels pain at times and on movement; right side, nothing. We examine his urine: sp gr. 1018, acid, small brownish deposit on standing; under microscope, blood-corpuscles, some pus-corpuscles, epithelium, no crystals, no casts; albumen a little: corresponding with organic matters present.

What is the seat of the lesion in his case? Perhaps the bladder: we found it tender to the sound, and it acts with undue frequency. Yet remember this is by no means evidence of any primary morbid change there, such conditions constantly accompanying diseases affecting primarily the kidneys or the upper part of the ureter. Much more probably the kidney. The manifest local tenderness the repeated attacks, the impaired health, the history, the absence of all the more common causes of cystitis in any form, point to the left kidney as the seat of mischief. The absence of albumen and of renal casts—a fact of not much weight, although their presence is of the utmost importance—lead us to believe him free from organic changes affecting the renal organs. I conclude that his left kidney is the seat of calculus, although he has never passed one, and has at present no crystalline deposit in his urine—a fact by no means essential to the diagnosis; and that this calculus is the source of the blood and pus found in his urine.

It is sometimes not easy to say what kind of calculus exists in these cases, of which this is a fair type. When any calculous matters have been passed which can be examined, or when the crystalline deposit in the urine is constant, the inference is pretty clear. Add to this that the probability in any case is strong in favor of uric acid, from its known frequency of occurrence—taking large numbers, say at least fifteen to one as compared with oxalate of lime.

For treatment: Alkaline diuretics and diuretic vegetable infusions, before named, for a period of time; attention to the digestive functions and to that of the skin, for the kidneys are probably working too much vicariously for some other function acting lazily; moderation in highly nitrogenised food; mild alcoholic drinks, perhaps in most cases permitting only a light and mild Bordeaux. Of all medicinal remedies, perhaps none are so valuable as mineral waters especially those which have sulphate of soda largely diluted as the main ingredient. Take Carlsbad as a type. For two well-known remedial agents, which are very popular each among its class, I am bound to tell you I have very small esteem. In town, it seems to me that every man advises his neighbor and on every pretext, to drink Vichy water—advice which is cheap, and of which the value in most instances by no means exceeds the cost. In the country, where perhaps the fairer sex more usually dispense similar aid to their suffering neighbors, the prescription is mostly gin-and-water. Of the first, or natural product, which is a strong solution of carbonate of soda, I must say that if not absolutely injurious, it is at least greatly inferior to potash; and of the second, or artificial one, that it is about as servicable to the kidneys as a pair of spurs to a jaded horse—makes him travel for a time, but takes it out of him in the long run. For the paroxysms of severe pain which denote the passage of a renal calculus, it must suffice here to name, hot hip-baths with diluents, and anodynes in liberal quantity.

I shall here, by way of episode refer to a mode of determining the true characters of a patient's urine, which is of extreme value in some doubtful cases—a mode which has never to my knowledge been recommended or practised, and which I have systematised for myself. I have already told you how essential it is to avoid admixture of urethral products with urine, if you desire to have a pure specimen. It is sometimes quite as essential to avoid its admixture with products of the bladder. And I defy you to achieve an absolute diagnosis—by which I mean a demonstration, and never be satisfied with less if it be practicable,—in some few cases, without following the method in question. When therefore it is essential to my purpose to obtain an absolutely pure specimen of the renal secretion, I pass a soft gum catheter of medium size into the bladder, the patient standing, draw off all the urine, carefully wash out the viscus by repeated small injections of warm water (before shown to be rather soothing than irritating in their influence), and then permit the urine to pass, as it will do, guttatim, into a test tube or other small glass vessel for purposes of examination. The bladder ceases for a time to be a reservoir; it does not expand, but is contracted round the catheter, and the urine percolates from the ureters direct. You have, indeed virtually just lengthened the ureters as far as to your glass. And now you have a specimen which for appreciating albumen, for determining reaction, and for freedom from vesical pus and even blood, and from cell growths of vesical origin, is of the greatest value, and has often furnished me with the only data previously wanting to accomplish an exact diagnosis. Mind never to be satisfied to guess at anything; make, very cautiously if you will, your provisional theories about a doubtful case—indeed, the intellectual faculty will do this constantly, and without reference to the will,—but arrive at no conclusion take no action, except so far as your are warranted by facts.

I have reserved these few words to the last, as the most important. The first words I uttered in this course were designed to convey to you my strong sense of the importance of acquiring the habit of making an accurate diagnosis, and a rapid one if possible. My last shall be to express once more the same conviction. Not because I undervalue the subject of treatment, but precisely with the opposite view; being anxious above all things that you and I should afford some essential service to those who have confided to us the care of their maladies. I adjure you to spare no pains to obtain the most complete knowledge of the complaint itself, since it is the only mode of arriving at a knowledge of what will be sound and efficient treatment.

I beg to thank you for the extreme attention and assiduity with which you have followed me during this course, and to assure you that such a manifestation on your part has rendered our meetings for these colloquial discourses some of the most agreeable relaxations which have fallen to my lot, to vary the routine of an anxious and very active professional life.

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# Clinical Illustrations
## OF
# DISEASES OF THE ABDOMINAL VISCERA.

By Stephen H. Ward, M.D. Lond.,

Physician to the Seamen's Hospital "Dreadnought" and to the Hospital for Diseases of the Chest, Victoria-Park.

### ABSCESS OF THE LIVER.

Abscess of the liver, except in connexion with general pyæmia, is of rare occurrence in this country. The experience of it as an idiopathic affection, or in association with dysentery, when the question of its being idiopathic is an open one, is almost limited to practitioners in India, and to those in this country who are brought into contact with officers, seamen, and other individuals who return invalided from tropical climates. The literature of the subject is, therefore, mainly identified with the names of old Indians, as Annesley, Waring, Twining, Martin, and Morehead, or of those at home, as Dr. Budd, who have had some special opportunity of observing the disease. The Seamen's Hospital is the source from which Dr. Budd drew much of the material for his admirable work "On Diseases of the Liver;" and it is still the special field for the study of tropical hepatic and other affections in their subacute and chronic forms. I have on several occasions contributed papers to The Lancet in illustration of such affections, and I purpose now giving the results of my experience in reference to hepatic abscess.

I have before me the notes of twenty-two cases; eighteen of which were under my care at the *Dreadnought*, the remainder having been met with in private practice. I purpose narrating but one or two cases at any length, and shall avail myself merely of a general analysis of the rest in elucidation of doubtful or interesting points.

Abscess of the liver is not always readily diagnosed. In some of my cases the more striking symptoms were wanting; whilst in cases where the indications of the affection seemed conclusive, and the patients died exhausted by the dysenteric process, no abscess was found. Still there are symptoms which, especially when taken in the aggregate, may be regarded as tolerably conclusive. These are:—

1. *Bulging of the ribs*, or prominence of the liver below them, especially if over such prominence fluctuation can be detected.

2. *Pain* (*a*) *direct*—superficial and acute if the abscess be so near the surface as to involve the peritoneum; deep-seated and detected by firm pressure over the hypochondrium when the abscess is away from the surface. In connexion with this direct pain may be noticed the position of the patient, who is generally most at ease on his back, feeling a dragging sensation if he turns on his left side, and pain from pressure if he lies on his right. A throbbing pain is also felt when active suppuration is going on. (*b*) *Distant pain*, referable to the right shoulder, and especially localised about the acromion process. I am pleased to be able to dismiss the unsatisfactory term "sympathetic" in reference to this pain, seeing that it is caused by direct irritation of nerves. In his Hunterian Oration, Mr. Hilton explains the transference of pain to the shoulder, in hepatitis generally, by the fact that the right phrenic nerve arising from the third and fourth cervical gives off a branch, which takes its course under the inferior cava, through the fissura venosa into the porta of the liver, and, finally, also one or two filaments to the round ligament. It will be remembered, also, that the cervical nerves, from which the phrenic proceeds, send branches to the skin about the shoulder. What is the value of this symptom in the diagnosis of abscess? Not, I think, great, unless taken in connexion with other symptoms. It was present in eight of my cases, and in only seventeen per cent. of cases collected by Rouis. Annesley regarded it as pathognomonic of abscess in the upper part of the right lobe, and Budd's experience accords with his. This view I cannot confirm. The symptom in question was present in one case in which the abscess was opened below the ribs and was clearly at the lower part of the liver. It was absent in two cases in which the abscess had opened into the lung, and also in two cases in which there were several abscesses in different parts of both lobes of the liver. The anatomical explanation is, I imagine, that pain in the shoulder would be present only where the abscess involves the part supplied by the branches of the phrenic nerve.

3. *A rigid state of the right rectus muscle* was regarded by Twining as distinctive of deep-seated hepatic mischief. This symptom existed in a few of my cases, but I have observed it in connexion with other abdominal affections, and I think with Morehead that it is merely a natural effort to ward off pressure from a tender part beneath; and that, while such contraction may be a valuable sign of subjacent inflammation, it has no special relation to hepatic disease.

4. *Jaundice* existed in only three of my cases. In a case in which the hepatic structure was almost destroyed by abscesses it was profound; in another case, connected with general pyæmia, it

was slight and persistent. Its absence would rather help in the diagnosis of abscess from other affections of the liver, and may be explained by the fact that a large portion of the organ is usually left intact for the performance of its functions.

5. *Rigors* and *hectic fever* are symptoms which would probably be present where the suppurative process is in activity, and which, especially when associated with dysentery, would materially aid in the diagnosis.

Other symptoms, of characteristic import, would vary with the course taken by the abscess. If it is about to open externally, we should have redness of skin, fluctation, pointing, &c. If, which is perhaps the most common result, it effects an opening into the lung by adhesions with and ulceration through the diaphragm and its serous investments, we have an additional series of symptoms, which will be noted subsequently.

The stools are usually natural, loose rather than otherwise, and unless much liver-structure is involved, fairly charged with bile. The urine is almost always high-colored, and my experience agrees with that of Mr. Busk, who tells me that he has almost invariably found it to contain a pink or lateritious sediment.

The following case may be introduced here in illustration of the symptoms and course of the affection:—

D. B——, aged thirty-eight, an Irishman, was admitted into the *Dreadnought* on Dec. 3rd, 1857. He had twice had ague: once, nine years before, in New Orleans, for three weeks; and again, two or three months since, on the coast of Africa. About two months back he was attacked with diarrhœa, which soon merged into dysentery of an acute character. He had never suffered from this latter complaint before. He was comparatively well from the dysentery at the end of a week or so; but felt prostrate, had no appetite, and continued to suffer from pain in the abdomen. For the last three weeks the pain has centred in the right hypochondrium, and been attended with dyspnœa and cough.

*Symptoms on admission.*—Complains of pain in the right hypochondrium, increased by firm pressure of the entire hand, and extending over the epigastrium. The abdominal muscles are rigid; there is no marked enlargement of liver, or undue prominence over its site. He has dry cough, and short, catching respiration; and there are loud râles in front of the right side of the chest. The stools are loose, and contain plenty of bile. The pulse is rapid, the skin hot and dry, and he appears emaciated. Complains of pain in the right shoulder. Was ordered dry cupping over the hypochondrium, salines, with liquor potassæ, and tincture of hyoscyamus; and calomel and opium every four hours. Was placed on milk diet.

Dec. 6th—Much relieved by the cupping; can lie on the back, but not on the left side. On inquiry, it appears that he has had shivering at times without feeling cold, and that it comes on when he is dosing. Ordered to discontinue the calomel, to have a large linseed-meal poultice applied over the right side, and, as the bowels were rather confined, a dose of castor oil was prescribed.

7th.—Bowels have acted three times; stools bilious; urine high-colored, of sp. gr. 1020.

On the 9th he vomited a quantity of thickish, green fluid, and afterwards felt relieved. From this day to the 14th he appeared to improve; but on the 14th complained of more pain in the right side. On the 17th it was found that he had been sweating profusely in the course of the two or three previous nights. He was now put upon a course of nitro-muriatic acid, which was continued, with apparent benefit, for a week or two, the motions maintaining a healthy character, and the constitutional disturbance being less marked.

Jan. 7th, 1858.—Has more pain, and there is undue fulness over the region of the liver, though no material enlargement downwards. Leaning on the right side causes pain, and he complains of pain and soreness in the right shoulder and along the inner side of the arm. Ordered the nitro-muriatic acid bath every night. This seemed to do good, especially as regards the functions of the liver, and in diminishing the hectic fever. On the 26th he complained of formication over the chest and abdomen, and occasional hiccough, and the bath was discontinued.

On the 29th he was worse; felt much prostration; more pain in the right hypochondrium, increased on moving or coughing, and he had sweated copiously at night.

From this date, through the month of February and greater part of March, he continued, with occasional improvements for a day or two, to get worse; the hepatic symptoms and indications of suppuration becoming more marked and the constitutional disturbance, in the way of hectic fever, and subsequent perspirations, greater.

March 26th.—The abscess is pointing just above the angle formed by the junction of the cartilages with the osseous portion of the last ribs. The liver extends about an inch and a half below the normal limits. The adhesion of the liver with the parietes is determined by the former not shifting its position with a shifted position of the patient, or with the acts of expiration and inspiration. As the patient was becoming exhausted, it was determined to open the abscess. This was accordingly done with a sharp-pointed bistoury, and about a pint of curdy pus escaped. The abscess continued to discharge, especially under the acts of coughing and deep inspiration, and the severer constitutional and local symptoms were relieved. He continued, however, notwithstanding the free administration of brandy, wine, and beef-tea, to get more prostrated and emaciated, and died on April 5th.

*Inspection.*—Body emaciated. Liver encroaching on the right half of the chest to the level of the third rib. Right lung compressed, carnified below, œdematous above. At the apex three cicatrices, but no evidence of present tuberculous condition. Left lung healthy. Anterior surface of liver firmly fixed to abdominal parietes for several inches around the external aperture. Weight of liver, six pounds and a half. In the right lobe there was a large abscess, with smaller ones communicating with it. It had burrowed outwards and downwards until it reached below the ribs, then forwards and through the parietes. No appearance of gangrene. A number of smaller abscesses, about the size of a walnut, occupied the right and left lobes, and contained greenish pus. Intervening hepatic structure healthy. The spleen weighed six ounces, and was healthy; right kidney pale and flabby, left healthy; some of the mesenteric glands enlarged. Large intestine dotted over with circular ulcers, with raised indurated borders; a few had irregular congested borders. The mesenteric and portal veins were healthy.

When abscess of the liver effects an opening into the lung by adhesions with, and ulceration through, the diaphragm and its serous investments, other symptoms arise in addition to those already enumerated. There is, first, a pseudo-pneumonia excited at the base of the right lung, extending but a short way up, and marked by crepitation; dulness on percussion; bronchial respiration; some cough and hurried breathing, and slight expectoration of mucus tinged with blood. There is no deficiency of the chlorides in the urine, as is usually the case in true pneumonia. When the abscess has effected a communication with the lung there is suddenly a discharge of a large quantity of matter, having a peculiar brick-dust color. The appearance of this is, as Dr. Budd remarks, quite characteristic. "There is," he says, "no matter like it expectorated in any disease of the lung itself, and I believe that its appearing is pathognomonic of abscess of the liver, or at least of abscess perforating the lung." Mr. Busk, in a letter to me upon the subject, confirms the view of Dr Budd. In six of my cases the abscess terminated by opening into the lung, and in every case with a fatal result. In four of these the expectoration had the brick-dust color; in one of the remaining cases it had more of a mahogany color, and a distinct bitter taste to the patient. Dr. Budd has noticed the large quantity of matter expectorated in these cases. My own experience confirms his statement. In the case of a captain whom I saw in consultation with Mr. Coward, in Stepney, the quantity of matter brought up in three or four hours was sufficient to half-fill a large chamber utensil.

One case will suffice in illustration of abscess opening into the lung.

J. M——, admitted on board the *Dreadnought* Aug. 24th, 1860. Was in the hospital five weeks back with symptoms of congestion of the lung; and was discharged, relieved, at the end of eleven days. Since then he has been engaged on board his ship in dock. Eight days back, when at work, he felt something give way in his right side, and two or three days back he had rigors; otherwise has been pretty well. When he first presented himself, he had returned from the west coast of Africa, where he had been for six months, and had had ague, but not dysentery; but three years back, in China, he had suffered from the latter complaint for some months.

On admission, there was dulness on percussion on the right side, beginning a little above the nipple in front, and covering a large area behind; vocal resonance slight; moist and rather large crepitation, most marked in the act of expiration, heard anteriorly and posteriorly. Expectoration of thin frothy matter tinged with blood, and having a very bitter taste. No deficiency of chlorides in the urine. Weak rapid pulse, and an aspect of ague cachexia. He was ordered milk and beef-tea, some brandy, a dose of morphia at night, and to keep quiet in bed.

Aug. 27th,—Expectoration much the same in quantity, purulent, containing some blood, and of bilious odor; cough troublesome; physical signs not altered.

On the 31st the expectoration continued in considerable quantity, and was of the peculiar-brick dust color. It varied in amount, but maintained the same appearance through September and the greater part of October.

Oct. 24th.—Amount of expectoration much increased, but the same in appearance. There is large crepitation over bases of both lungs posteriorly, but more marked on the right side, where there is deficient expansion and increased vocal fremitus.

The expectoration continued in considerable quantity up to Nov. 20th, when it began to diminish and his condition to improve. On December 5th he was reported as gaining flesh and strength, and the expectoration as still sanguineous, but scanty. He was allowed a little meat, in addition to the nourishing fluid diet on which he had been exclusively kept thus far. He continued to improve for more than a month, and there seemed a fair prospect of recovery. Unfortunately, however, in the early part of January, 1861, matters became worse, and on Jan. 14th, the report was: "Expectoration much more profuse, of reddish-brown color, and purulent; dulness over right side to two inches and a half above the nipple; loss of appetite; anxious aspect; diarrhœa." On the 21st he complained of pain in the right shoulder, and there was pain on pressure over the right hypochondrium. From this period he gradually sank, and died on Feb. 21st.

At the autopsy the left lung was found to be adherent to the parietes, but healthy. Right lung adherent below to the ribs and diaphragm. The ribs were divided so as to take out the liver and lung together, but in removing these thick healthy pus escaped to the extent of about a pint. On dividing the liver and lung vertically, a large abscess was found occupying the upper part of the right lobe of the liver, and extending by a large opening through the diaphragm into the right lung. The walls of the abscess were irregular. The large intestine presented only a few old cicatrices.

I introduce the following case to show that hepatic abscess may occur in this country as an idiopathic affection. At any rate, the antecedent history, and careful examination during life and after death, failed to reveal a pyæmic origin. The record of the case is short, but sufficient.

J. H——, a small tradesman, living in a low, damp district contiguous to the Wandsworth-road, was seen by me, with Mr. Powell, in May, 1861. He had not been a drinker, had never been out of the district in which he lived, and had not suffered from diarrhœa or dysentery. He had been ill for some time, and when I saw him was intensely jaundiced, had an anxious, hectic look, rapid pulse, pain over the liver, and occasional severe rigors. The patient died soon after, and Mr. Powell forwarded me the following report of the post-mortem examination:—Thoracic viscera healthy. Peritoneum covered with lymph, glueing together the bowels and opposite surfaces, easily separated, and showing a recent origin. Intestines healthy. Liver closely adherent to the diaphragm. On cutting into it, it was found to be riddled throughout with abscesses, varying in size from a pea to a walnut; intervening tissue soft. At the upper and back part of the right lobe was a larger abscess, which would probably have penetrated to the lung had the man lived longer.

On analysing my twenty-two cases, with reference to the mode of termination, I find that the abscess in ten effected no opening, six opened into the lung, one probably into the bowels, and five pointed externally. Of these, one opened by natural process, the others were opened by the lancet.

*Etiology.*—There is no doubt that a large number of the cases of abscess of the liver met with in this country are excited by contamination of the blood with pus from suppurative inflammation of the veins induced at some distinct point. In one of my cases there were many small abscesses in the liver; points of matter on the spleen, surface of the peritoneum, and in the lungs, and, for apparently the exciting cause, an abscess in connexion with the urethra. Such general pyæmia not unfrequently occurs after surgical operations. Budd cites three cases of Dr. Jackson's at Calcutta, in which it followed an operation for the removal of piles; and Mr. Bedford, assistant-surgeon at the *Dreadnought*, informs me of a case which occurred there, in which the operation just alluded to was also followed by slight deposition of pus in the liver. In one of Dr Budd's cases there were abscesses in the liver, lungs, and joints from phlebitis after bleeding. Admitting, then, abscess of the liver as a symptom in connexion with general pyæmia, we come next to the question of its association with dysentery. Dr. Budd, following, as Frerichs remarks, views first brought forward by Ribes, is of opinion that the exclusive cause of suppurative hepatitis is transmission by the portal vein, and the veins going to form it, of pus or vitiated secretion from an ulcerated intestinal surface. Ulceration of the bile-ducts or stomach was present in two or three of his cases, in which dysentery was absent. No doubt the association of the disease with dysentery is frequent. In fifteen cases of Dr. Budd's the state of intestine was not noticed in two, but in eight out of the remaining thirteen there were ulcers in the large intestine, in two in the stomach, and in one in the gall-duct. There was dysentery in both of his two cases at King's College Hospital. In twenty-nine cases recorded by Annesley, twenty-one were associated with dysentery. In fourteen out of the twenty-two cases of which I have notes, dysentery was present. In one case there was general pyæmia, in another a large mesenteric abscess, and in six cases no dysenteric ulceration or evidence of pyæmic origin. Dr. Bristowe some time back analysed the cases of ulceration of intestine and abscess of the liver which had occurred in St. Thomas's Hospital, and found the proportion of the latter to the former to be small. In thirty-two cases of dysentery there were abscesses of the liver in four, and in three of these the dysentery was secondary. In fifty-one out of 300 cases of hepatic abscess occurring in the East Indies, and cited by Waring, there was no ulceration of large intestine in one-fourth. Morehead records seventeen cases of abscess of liver where there was no implication of the intestine, and seven where the dysentery was secondary to the hepatic affection.

If hepatic abscess be excited by phlebitis in connexion with intestinal ulceration, why, I would ask, is it so rare a sequence? At the *Dreadnought* it has certainly not occurred in more than five per cent. of the cases of well-marked and severe dysentery. It has never occurred in connexion with the ulceration of typhoid fever or phthisis. The conclusions that may be drawn are, I think, the following:—

1. That in some of the cases in which the dysentery had been the prior affection the pyæmic theory may be admitted, although in these cases the abscess may have been merely an accidental accompaniment, and induced by the same causes as the dysentery.

2. That in the cases in which the hepatic abscess has clearly been the prior affection, and in those in which there has been no ulceration of intestine or other evidence of pyæmic origin, the disease must be regarded as idiopathic; the exciting cause being probably, as Morehead suggests, a chill occurring in the cachetic state of system induced by a residence in the tropics or by other depressing influences.

*(To be concluded.)*

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# Original Papers.

## ON THE NATURE AND TREATMENT OF PULMONARY CONSUMPTION.

## AS EXEMPLIFIED IN PRIVATE PRACTICE.

By Charles J. B. Williams, M.D., F.R.S.,
Consulting Physician to the Hospital for Consumption at Brompton; and

Charles Theodore Williams, M.B. Oxon.,
Assistant-Physician to the same Hospital.

*(Concluded from September No.—p. 533.)*

### SUMMARY.

BY DR. C. J. B. WILLIAMS.

On taking a retrospect of an experience of forty years in the treatment of pulmonary consumption, I can trace a remarkable improvement in its success, as judged by the results. During the first ten years of that period the beneficial effects of the treatment were very limited, being chiefly confined to incipient cases, and to those who were able at an early stage and for long continuance to resort to more favorable climates, such as can be obtained by voyages to Australia or India. My general recollection of the histories of the developed disease at that time is that of distressing tragedies, in which no means used seemed to have any power to arrest the malady; the tardative and palliative treatment employed was little satisfactory; and life was rarely prolonged beyond the duration of two years, assigned by Laennec and Louis as the ordinary limit of the life of the consumptive.

In the next period of ten years (from 1838 to 1848) a marked improvement took place in the results of treatment apparently in connexion with the habitual use of mild alterative tonics, as they might be termed, particularly iodide of potassium with sarsaparilla or other vegetable tonic. These were first given in conjunction with liquor potassæ or an alkaline carbonate; but the lowering effect of the alkali led to the substitution of a mineral acid, generally the nitric; and a combination of this description (iodide of potassium, two grains; dilute nitric acid, fifteen drops; tincture of hops and compound fluid extract of sarsaparilla, of each one drachm; with an ounce of water or infusion of orange-peel) became the favorite prescription until it was superseded by something which was much more efficacious. Several of the earlier of the cases recorded were treated in this way, and with improved results in respect of the general health of the patients and diminution of the cough and expectoration.

It was in the latter half of this period that chemists began to produce cod-liver oil of sufficient purity and freshness to be fit for the human stomach; and I have no hesitation in stating my conviction that this agent has done more for the consumptive than all other means put together. And so far is this remedy from having "had its day and gone out of fashion," that in my experience its usefulness and efficacy have gone on increasing in proportion to the greater facilities for obtaining it in a pure state, and to the improvements in the manner of administering it, in combination with various tonics, and in connexion with certain rules of diet and regimen. Many of the cases narrated in the preceding papers are striking proofs of the efficacy of this remedy not only in the general results of cure or prolongation of life, but also in detached passages of the abridged histories, in which improvement or deterioration in the symptoms corresponded respectively with the regular use of the oil, or its discontinuance.

The cases selected to exemplify the preceding papers have been taken from the records of my experience during sixteen years, up to 1857. They are a very small sample compared with the whole number under my care during that period; but they are selected, not as being more favorable, but simply because they remained under observation for a year and upwards, and therefore gave the opportunity of more correctly judging of the results of treatment than those seen for a shorter time; and although this very ground of selection implies that the cases eventually became chronic yet many were acute in the first instance, and their surviving into the chronic state may fairly be ascribed to the treatment. In stating that the average duration of life in phthisis has during my experience of forty years been at least quadrupled or raised from two to eight years, is below the actual results as calculated by my son; for of the 500 cases, 380 were still living at the last report, and many of these are likely to live for many years to come. I may add further, that the results of the last ten years' experience, from 1857 to 1867, which have not yet been calculated, will, in all probability, be still more favorable as regards the number of cures and great improvements, and the expectancy of life, although the time does not allow of such high figures in actual duration of life.

In conclusion, I will endeavor to give a brief general view of the treatment which I have commonly adopted. As we have been led to conclude that consumption is essentially a disease of degeneration and decay, so it may be inferred that the treatment for the most part should be of a sustaining and invigorating character. Not only the most nutritious food, aided by a judicious use of stimulants and of medicinal tonics, but pure air, with such varied and moderate exercise in it as the strength will bear, and the enlivening influence of bright sunshine and agreeable scenery and cheerful society, are among the means best suited to restore the defective functions and structures of frames prone to decay.

This is the most comprehensive view that can be taken of the means found to be most effective in the prevention and cure of consumptive diseases; but when we come to examine the details of cases we find that the treatment is by no means so simple a problem, and that varied and even opposite remedies are required to control the different morbid actions concerned in developing or in aggravating the malady. Inflammation is by no means an essential part of tuberculous consumption, and yet, as we have seen, many cases originate in inflammation, and in many more this process is mainly instrumental in aggravating and spreading the destructive ravages of the disease; therefore remedies that may be called antiphlogistic frequently have to be used in its treatment.

I apprehend that most practitioners in this country are agreed in considering that consumption should be generally treated on a tonic and sustaining plan; and that the nourishment and strength of the system should be supported by varied tonics and cod-liver oil, as well as by the most nutritive articles of diet. But when the disease is ushered in with symptoms of acute bronchitis or pneumonia, with its attendant fever and scanty disordered secretions, it is obvious that such treatment is wholly unsuited for the occasion; and that remedies of the mild antiphlogistic kind such as salines, with or without antimony, blisters, and cataplasms, and sometimes even moderate leeching or cupping, will give most relief, and will prepare the patient for the safe administration of the sustaining class of remedies. In former years in this country (as still in many places abroad) the antiphlogistic and starving plan was carried on too long and too far; but it appears to me that there is now a tendency too much to the opposite extreme, so that consumption is treated too exclusively with tonics, stimulants, and full diet. I quite admit that this is the better extreme of the two; and it may fairly be stated that the sooner, and the more constantly, patients can be treated on this plan, the better. But in case of active inflammation, continued heat of skin, hard racking cough (dry, or with viscid and tinged expectoration), much pain or soreness of the chest or side, it answers well to withhold or withdraw the stronger stimulants and tonics, and for a time —it may be a few days only—to substitute cooling and soothing remedies, with moist epithems or counter-irritants on the chest, and, more rarely, local depletion. But this discipline, which is exceptional, should as soon as possible be replaced by what may be called the regular treatment by cod-liver oil and tonics, and a more generous diet. The transition need not be abrupt. So far as regards cod-liver oil, and the mild acid tonics, with which I generally combine it, the change may be made long before the inflammatory complication has subsided. A dose of these may be given after the morning and perhaps after the midday meal, whilst still the saline is taken in the evening and night, and whilst blisters or other counter-irritants are in full operation.

So soon as the nocturnal heat of skin subsides and the cough becomes less urgent, and the urine more free, the salines may be replaced by a mere cough linctus, if that be needed; the counter-irritation moderated, and the tonic, given with the oil, gradually strengthened by the addition of small doses of salicine, quinine, or iron. These two last tonics are of great use where they are well borne, as their influence in strengthening the muscular system and in improving the condition of the blood is greater than that of any other drug; but their use requires much discretion and watchfulness, for they often increase the lingering or intercurrent inflammations, with their attendant pain, constriction, cough, and viscid expectoration, and not unfrequently they derange the functions of the stomach and bowels. It therefore often happens, where the patient cannot be seen frequently, that it is safer to be content with a milder tonic—such as calumba, cascarilla, or chiretta,—which may be continued for weeks and months together in conjunction with the oil, than to give those that are more powerful, but which by occasional disturbances may prevent the continuance of the remedy.

But the great remedy, more essential and more effectual than any other, is the cod-liver oil; and we may well bestow a little consideration on the mode of using it to the best advantage.

It is now pretty generally admitted by the profession that the pure, pale oil, simply extracted from the fresh, healthy livers of the fish, is that most suitable for the majority of patients, as being less unpalatable and at least as efficacious as the impure kinds. Since I first recommended this pure oil (*London Journal of Medicine*, January, 1849) it has been so extensively prepared and used that it is now one of the most important articles in the materia medica; and the universality of its introduction is a strong proof of its claim to public favor.

On the mode of operation of the oil, and on the best methods of administering it, I have little to add to what I published twelve years ago ("Principles of Medicine," 3rd edit., p. 487). To that I must refer for details which would be too long for quotation here; but I may give the following brief summary of my opinions and experience on the subject.

Cod-liver oil, when taken into the system in sufficient quantities, and for a sufficient length of time, acts as a nutrient, not only adding to the fat of the body, but also promoting the healthy growth of other tissues, and in some way, as an alterative, counteracting the morbid tendency to the proliferation of the decaying cells of pus, tubercle, and kindred cacoplastic and aplastic matters.

That its efficacy depends much on its being absorbed freely into the blood, and through the circulation pervading all parts of the body, and thus reaching to the very seat of morbid deposits and formations.

That the more fluid part of cod-liver oil surpasses all other oils and fats in the facility with which it forms emulsions, which are tolerated by the stomach and readily absorbed into the blood, without causing the nausea and bilious derangement that commonly result from an excess of fat food. This peculiarity may depend on the biliary and other matters contained in the oil, which in other instances of disease is found to act beneficially on the liver and other secreting organs.

That the best time for the administration of the oil is immediately after, or, to those who prefer it, at or before, a solid meal, with the constituents of which the oil becomes so intimately blended that it forms a part of the chymous mass, and is less likely to rise by eructation than when the oil is taken into an empty stomach. From this chymous mass, the oil being absorbed through the lacteals with the chyle, is less apt to disorder the liver than if absorbed through the veins of an empty stomach.

That as the use of the oil should be continued for a long time—perhaps for months, or even years—it is of great importance to conciliate both the palate and the stomach by giving it in a vehicle which may agreeably disguise its flavor and strengthen the stomach to bear it. For this purpose an aromatic bitter, such as the compound infusion of orange-peel, acidulated with a mineral acid, both to help to cover the taste of oil and also to suite the stomach, which should be duly supplied with acid during digestion, generally answers well. Syrup may be added according to the taste of the patient; or, still better, some bitter tincture, such as calumba, cascarilla, or quinine, in every case in which it is desirable to improve appetite and tone. In cases of peculiar weakness of stomach, with tendency to retching or nausea, strychnia, in a dose of from 1–32 to 1–24 of a grain, proves a most valuable adjunct to the vehicle. By its means I frequently overcome the fastidiousness of stomach arising from debility, hysteria, or indulgence in alcoholic liquors. Salicine is another efficacious alternative of the same kind. Either of these, although a powerful tonic, has none of the heating properties of quinine or iron. When the strong bitter taste is objected to, a pill, containing extract of hop or chamomile, or salicine, or quinine, may be taken after, or before, the oil and its vehicle.

The bulk of the whole dose of oil and vehicle should be small, so that it may be swallowed at a single draught; therefore the vehicle should not exceed a tablesoonful, with, at first, a teaspoonful of oil, to be gradully increased to a tablespoonful. The dose of oil should rarely exceed a tablespoonful twice or thrice daily: when a larger amount is taken at a time, generally either it deranges the stomach or liver, or some of it passes unabsorbed by the bowels.

The acid may be varied according to circumstances. The nitric generally suits best in inflammatory cases, and those attended with much lithic deposit in the urine; but its tendency to injure the teeth is an objection to its long continuance. The sulphuric is more eligible where there is liability to hæmoptysis, profuse sweats, or diarrhœa. But in most cases, and for long continuance, I have found reason to prefer the diluted phosphoric acid, which may be termed the most physiological of the acids, tending to derange the chemistry of the body less than the others.

With some individuals the oil agrees so well, and so much improves their digestive powers, that they require few or no restrictions in diet; but this is not the case with the majority. The richness of the oil does prove more or less a trial, sooner or later, to most persons; and to diminish this trial as much as possible, it obviously becomes proper to omit or reduce all other rich and greasy articles of food. All pastry, fat meat, rich stuffing, and the like, should be avoided; and great moderation observed in the use of butter, cream, and very sweet things. Even new milk in any quantity is not generally borne well during a course of oil; and many find malt liquor too heavy, increasing the tendency to bilious attacks. A plain nutritious diet of bread, fresh meat, poultry, game, with a fair proportion of vegetables, and a little fruit, and only a moderate quantity of liquid at the earlier meals, commonly agrees best, and facilitates the continued exhibition of the oil in doses sufficient to produce its salutary influence in the system.

In case of a bilious attack coming on, indicated by nausea, headache, furred tongue, offensive eructations, high-colored urine, and sometimes pain and tenderness of the right hypochondrium, it is necessary to suspend the oil, lighten the diet of the patient, and give blue pill or calomel with an aperient on alternate nights, and an effervescing saline two or three times during the day. A few days of this treatment will generally set the stomach and liver to rights, and the oil may be resumed, beginning with small doses as at first. In all cases during the use of the oil the bowels should be kept regular in action; and if this cannot be done by regularity of habit and diet, it should be effected by the use of a mild daily pill of rhubarb or aloes.

Such are the directions which have proved most effectual in the administration of a remedy which may truly be said to have so much altered the prospects of the consumptive as to give hope of cure in not a few, and of much prolonging life in by far the greater number. But to induce patients to follow these directions, and to overcome their aversion to a remedy which the prejudice of some represents as disgusting, and the experience of many may find trying to continue for so long,—the practitioner will often find it necessary to use all his powers of argument and persuasion. The great plurality of patients are amenable to reason, and are willing to follow any advice that is given with *confidence* and *clearness*. To those who demur or rebel it is generally expedient to tell the plain truth—that they have a serious disease, pretty sure to increase, and sooner or later to destroy life, if left to itself; but *here is the remedy*—the only one worthy of the name, which if carefully and faithfully used may arrest and cure the disease, and is pretty sure to retard it and prolong life more than any other known means. If the physician believes this himself he will rarely fail to carry his patients with him. I believe it firmly, and I rarely fail to make the patient take the oil, and to persevere with it, in the experience and conviction that it is essential to his well-being and improvement. The proportion of recusants, either from waywardness of temper, fastidiousness of taste, or from intolerance of stomach, altogether does not exceed five per cent.

Although my long experience assigns to cod-liver oil a place far above all other remedies in the treatment of pulmonary consumption and its allied maladies, it has taught me to believe also in the limited efficacy of certain other agents, and it would not be fair to pass these over in this brief summary of treatment.

I have already mentioned a combination of iodide of potassium and nitric acid with a vegetable tonic, as having distinctly wrought some good in consumptive cases before the pure oil was introduced. I still sometimes use this medicine in the rare cases in which cod-liver oil disagrees or cannot be taken, and I think that it is improved by the addition of a drachm or two of pure glycerine to each dose. Glycerine by itself is of little use, but it is valuable as a lubricant and to sheathe the acrimony of mineral acids and other pungent medicines,

The hypophosphites of soda and lime, so strongly recommended by Dr. Churchill, of Paris, have in my hands proved decidely beneficial in certain cases. They have been tried by Drs. Quain and Cotton, at the Brompton Hospital, with only negative results; but having met with several patients who distinctly ascribed their improvement to Dr. Churchill's treatment, I have thought it right to try them myself, both as a substitute for the oil and in addition to it. In the former way the results have not been generally satisfactory: the hypophosphite does not disagree, but there is no marked improvement as under the oil; and when they have been doing well under the oil, the patients generally lose flesh and strength when the hypophosphite is substituted for it. On the other hand, it has happened to me in several cases that a patient has long been taking the oil, and, after having derived great benefit from it, halts in his improvement, or even loses ground, and then the addition of the hypophosphite has been followed by a marked change for the better; flesh and strength have been gained, and the chest symptoms have been more or less improved. In these cases I have merely added four or five grains of the hypophosphite to the vehicle in which the oil is given, always selecting the phosphoric as the acid, and generally substituting glycerine for the usual syrup. Such precautions are necessary, because the hypophosphites are very unstable in composition; the addition of nitric acid, or mere exposure of the solution to the air (if not guarded with glycerine or a good deal of syrup), being sufficient to convert them into inert phosphates. In my mixture of the hypophosphite with phosphoric acid, I presume the hypophosphrous acid is set free, and is the active agent in the compound. How it acts is quite uncertain. I cannot say that I agree with Dr. Churchill's views on the subject, even if I understand them. These hypophosphites seem to increase the failing powers of respiration and circulation. Can this be by increasing the affinity of the blood for oxygen, so that it can attract it and maintain the blood-changes even under the increased difficulties and obstructions produced by disease?

Perhaps the efficacy of the sulphurous acid—Dr. Dewar's remedy for consumption—may depend on an influence not altogether unlike that of the hypophosphites. My experience of the use of the spray of sulphurous acids is limited in phthisis, and as far as it has gone has not been very encouraging. But I have found the spray a most useful and agreeable remedy in various affections of the throat, whether diphtheritic or aphthous; and it has proved cleansing and soothing in some cases of foul ulceration of the throat, affecting both larynx and fauces, generally syphilitic in origin, and sometimes ending in pulmonary consumption.

In connexion with this subject, I most notice remedies administered by inhalation, which are really useful in certain cases, chiefly those in which the larynx and trachea are much affected, and in those attended with convulsive cough or offensive expectoration. I have generally found the use of inhaling instruments fatiguing and unnecessary. A quart jug of hot water, with a napkin from over the nose down to and around the jug to confine the steam, is all that is needed. To the hot water is added the drug to be inhaled; and creasote or carbolic acid, iodine, chloroform, oil of turpentine, and juice or extract of hemlock, are the articles which I have found most beneficial. A few drops of one, or of several of these combined, being put into the hot water, the inhalation is practised through both mouth and nostrils without restraint or difficulty, and may be continued for five or ten minutes every night, and, if need be, repeated once or twice in the day. Although the chief operation of this medicated vapor is on the guttural and bronchial surface, yet a portion penetrates into the lungs, and is absorbed into the system; for iodine and oil of turpentine can be detected in the urine within a few minutes of the inhalation being made. Still, although proving very serviceable in certain cases, I cannot rank inhalation higher than as a subordinate remedy in the treatment of consumption. I may add, that the practice of painting the chest with tincture of iodine every night, as a gentle counter-irritant, is not without a certain influence in the way of inhalation: for a portion of the iodine evaporates, and slightly impregnates the air around the patient, and this atmosphere of iodine may not be without its influence for good.

The sulphurous waters of the Pyrenées are highly recommended by the French physicians in the treatment of consumption; and a few of my patients, after wintering at Pau, have found some benefit from the waters of Eaux Bonnes and Cauterets during the summer months. But in other cases, and these the greater number, more harm than good has resulted from their use. More or less excitement of the circulation and respiration it generally induced by the sulphur waters, and instead of inducing expectoration and subsequent relief to the cough and breathing, the critical improvement has not taken place, and the patients have come away weaker and more oppressed than they went. With all respect for our brethren across the Channel, so far as regards their cleverness in diagnosis, I do not hesitate to say that they are far behind British practitioners in their skill and success in the treatment of disease in general, and of diseases of the chest in particular. The same remark applies pretty much to the German doctors and their water cures, whey cures, and grape cures. Except in a few instances with the waters of Ems, I have hardly known any British pulmonary invalids derive any permanent benefit from these modes of treatment; but I quite admit that they are sometimes useful when the pulmonary disease is complicated with gout, or decided disorder of the liver and digestive organs.

Of far more importance in the treatment of consumption is change of air and climate. It is of the greatest consequence to the phthisical invalid that he should breathe as pure an air as possible, and that the influence of this pure air on the blood and on the body should be increased by such gentle and varied exercise in it as his strength and the condition of his organs will permit. This is the great object of our sending him to a warm climate in winter, and to a high and dry locality in the summer, that he may be as much as possible in the *open air*, with its exhilarating and vivifying accessories of light, purity, and freshness, without the chilling operation of cold and wet in the winter, and the enervating and exhausting influence of oppressive heat in the summer. I cannot in this place pursue this important subject into the details of its application to the different forms and stages of disease, and the varieties of air and climate most suitable for them; but I may refer to my son's little work on climate[*] for concise information on these points. I would only add further, in conclusion, that several of the most successful cases which have been recorded in these papers are illustrations of the great benefits to be derived from well-directed voyages and change of climate, in addition to the treatment which has been summarised in the present pages.

In conclusion, I trust that the preceding papers have proved what I stated at the commencement: that, powerless as medicine is in the overwhelming and rapid types of pulmonary consumption, it has yet considerable influence over the milder forms; and *that under careful treatment life may be prolonged for many years in comfort and usefulness, and in not very few cases the disease is so permanently arrested that it may be called* CURED.

ILLUSTRATIONS

OF

# IMPAIRMENT OF THE POWER OF INTELLIGENT LANGUAGE.

IN CONNEXION WITH

# DISEASE OF THE NERVOUS SYSTEM.

By John W. Ogle, M.D., F.R.C.P.,

Physician to St. George's Hospital.

*(Continued from July No.—p. 413.)*

I now proceed with the consideration of cases in which the right side of the brain was the side diseased, and this alone, as determined by dissection, or assumed to have been so according to the symptoms.

Case 9.—Annie T——, aged nineteen, was admitted into St. George's Hospital on the 2nd of April, 1862, after an attack attended by unconsciousness. She was suffering from loss of power in all her limbs. Later on there was a constant desire to sleep; and it was found that there were *certain words* which she was hardly able to articulate. After death a large clot of extravasated blood was found in the substance of the *right* cerebral hemisphere, breaking into the right ventricle, and lying between the floor of that ventricle, and the base of the brain. This clot extended from the inferior cornu of the middle lobe to nearly the centre of the posterior lobe. (108.)

Case 10.—Matthew F——, aged sixty, a hard drinker, had a fit after a bout of drunkenness, and was for a time insensible, the whole body being paralysed. He recovered; but when he stooped was liable to giddiness. Seven years subsequently, after certain premonitory symptoms, he had a second fit, followed by hemiplegia and anæsthesia on the left side, and paralysis of the sphincters. He could not protrude the tongue beyond the lips; and when it had got so far, it was drawn suddenly back. After a time he much recovered: "he understood what was said to him, yet was much embarassed to answer. He could not find or put together the necessary words; but when he could command one or two words, they were appropriate and well articulated. The difficulty seemed to regard the power of language—not of articulation." Later on plegmasia dolens of the paralysed *left* leg and thigh came on, and eventually gangrene set in. After death much fluid was found in the ventricles and beneath the arachnoid. The brain was natural, excepting parts of the anterior and middle lobes of the *right* hemisphere, which were in most parts "disorganised, yellowish, soft, and pulpy." The only portions of the anterior lobe not involved were "the outer and lateral convolutions." The large veins of the left leg were quite obstructed and filled with adherent coagulum, and the arteries much diseased.

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[*] The Climate of the South of France and its Varieties most suitable for invalids. By Charles Theodore Williams, M.B. Oxon. 1867.

The above case is of much interest, and is related by Dr. Burns in his Clinical Lectures,* who attributes the phlegmasia dolens to the languid state of the circulation in the paralysed limbs, owing to which the blood came to a state of repose in the veins, the consequent distension of which veins produced more or less inflammatory action. The case in some respects resembles the following, related lately by Dr. Day of Stafford.†

CASE 11.—W. H——, a miner, aged forty-seven of a fine healthy frame, was admitted into the Stafford Infirmary on Jan. 12th, 1866. Eighteen months before, he had had rheumatic fever. His convalescence was long, and afterwards he suffered from dyspnœa, flatulence, frightful dreams, &c. His pulse was 82, weak and small; and the area of cardiac dulness was increased. There was a systolic bruit at the base of the heart, and other indications of cardiac mischief. Under treatment his dyspeptic symptoms became much relieved. The urine was free from albumen. About nine days after his admission, it was said that on his way across the ward he had an attack of breathlessness and fainting, and great pain in the left groin, thigh, and leg; but had not lost consciousness. Nothing particular was noticeable about the limb, except that the superficial veins were prominent. Two days afterwards, a peculiar grating murmur which had been audible at the base of the heart was absent, and Dr. Day began to think that the leg symptoms might have been owing to detachment of a fibrinous concretion. At the visit on the day after, he had had another fit, and was speechless. He was, however, conscious in all respects; the pupils were dilated and sluggish; the tongue was protruded straight. The leg from the knee downwards had assumed a dark-purple color, and the superficial veins stood out as cords; the limb was cold, and no pulsation existed in the arteries, and movement of the leg caused much pain. On examination of the heart, no murmur of any kind was audible. The patient remained speechless, but quite sensible; he was removed home by friends, and died three days afterwards. Unfortunately no post-mortem examination could be obtained. In a letter which I have recently received from Dr. Day regarding this case, he says that the loss of speech was complete: "the patient understood everything that was said, and made himself understood by well-regulated signs; but although he opened his mouth and closed it in the effort to speak, not one single word was produced." Dr. Day informs me that on the day the patient quitted the infirmary paralysis of the *left* arm and defective vision of the left eye came on, and that this caused him to conclude that there was arterial obstruction of the *right* side of the brain (possibly the right middle cerebral artery). He was told that on the day of the patient's death he uttered the word "yes"—nothing more.

CASE 12.—Lady S——, between forty and fifty years of age, and a stout person, was suddenly seized with *speechlessness*, general confusion of intellect, paralytic relaxation of the *left* side of the face, and vomiting. On the day following she had much recovered, complained of stiffness of the side of her face, and wept much. The face recovered its natural appearance and sensation, but pain in the head continued. She began to speak a few hours after the seizure, and "did not appear deficient in the accuracy or flow of ideas, but had almost totally lost the power of expressing them. She had forgotten the names of her most intimate friends, and after many days was unable to finish a sentence, if it consisted of more than three words." This defect, which caused her much unhappiness, had not wholly ceased at the end of five weeks, "though her general health and strength seemed otherwise perfectly restored." (From Dr. Parry's Collections, vol. i., p. 439.)

CASE 13.—Mrs. T——, aged sixty, thin, and subject to "nervous" complaints and headache, and great irritability of temper, was found lying on the floor, having quite lost all power, and also the sensibility of the skin to a great extent, of the *left* side of the body. Her faculties were entire, and she was able to speak with ease. She recovered the sensibility of the skin, but not the power of motion. For three months she continued in the same state, when she was suddenly seized with vomiting and *speechlessness*, unattended by convulsions and loss of senses. The pupils and the muscles of the face were unaffected; but she was scarcely able to put out her tongue, and was unable to swallow solids, and the sphincters were paralysed. She was extremely attentive to everything "which passed around her, and clearly understood all that was said to her; and, though unable to articulate, made intelligible replies, either by a faint motion of her lips, so as to express 'yes' or 'no,' or by that of her head or right hand. It was evident that it was merely the power of articulation, and of regulating the sphincter muscles, which was lost in the second attack. These circumstances varied little during what remained of her life." After death, which occurred about a month after the second attack "within the medulla at the back part of the *right* posterior lobe (of the brain), there was a fissure on the same level with the corpus collosum, reaching backwards into the cineritous substance, and forward, in a somewhat curved direction, full two and a half inches, and apparently from half an inch to three quarters in diameter, containing nearly half an ounce of dark grumous blood. The parietes of the cavity were not softened or broken down. On the outside of the *right* ventricle was a second rupture, which had destroyed the posterior angle of the right corpus striatum, and extended backwards two and a half inches by the outer side of the optic thalamus, which was involved in the fissure. The walls of this cavity were hardened, and smeared with a yellow-ochry and red viscid liquid. In the centre of the *right* lobe of the cerebellum was a third cavity half an inch long, full of thick blood of a brownish orange color." The other parts of the brain presented nothing worthy of comment. (Ibid., vol. i., p. 442.)

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* London Medical Gazette, vol. xxiii., p. 455.

† See his work "Clinical Histories with Comments," p. 237.

Case 14.—Sarah L——, aged forty-two, was seized with apoplexy and hemiplegia of the left side. "Her speech was long extremely defective. She now (ten months after seizure) speaks tolerably well, and has much recovered the use of the affected limbs." (Ibid., p. 483.*)

Case 15.—Matthew C—— was admitted into St. George's Hospital, July 13th, 1842, with hemiplegia of the *left* side. The memory was affected, and the articulation very difficult. No other special symptoms existed, and none certainly indicating that the left side of the brain was affected.

Case 16.—Mary A. C—— was admitted into St. George's Hospital March 16th, 1859. She had been suffering from headaches, when two weeks before admission she suddenly lost power of speech on going to bed, and next morning she found she could not rise owing to paralysis of the *left* arm and leg. This was accompanied by the feeling as of a ball and swelling in the throat and left side of the neck. For one week she remained speechless. On admission the left hemiplegia was well marked. After a few weeks she left the hospital.

Case 17.—Priscilla O——, aged twenty-seven, was admitted into St. George's Hospital in July, 1853, with decided want of power in the *left* arm, though not in the leg. There was no loss of sensibility of the skin. The mouth was drawn somewhat to the right. There was remarkable slowness of speech and of manner, but no loss apparently of memory. She had been subject to headache, and three months previously she had a "fit," during which she had no particular pain or spasm, excepting that the face was drawn, as it was said, to the left side, and the head was drawn in the same direction. At the time she quite lost power of utterance, so as only to be able to make an indistinct noise, which could not be understood. During this time she was quite conscious, and the attack lasted two hours. After the fit she limped and dragged the left leg, but soon acquired strength.

Case 18.—A man, aged seventy-six, was attacked with apoplexy. He recovered his consciousness and speech, but pronounced his words unintelligibly. He was paralytic in the *left* arm, and the tongue was protruded with difficulty, and to the right side. After treatment he regained sensation "and power of motion completely; but out of twenty words which he pronounced, there were eighteen which were not understood, and the other two were misapplied." It was reported that the patient was mad, but it was less a loss of reason than of the power of expressing himself. He remained in the same state, as regards the difficulty of speaking correctly, between three and four years. He eventually died of fever. (Portal's "Observations sur l'Apoplexie," p. 59.)

Case 19.—Elizabeth S——, aged eighteen, a delicate, strumous-looking girl, and one of a phthisical family, with abscesses of the neck, became an out-patient at the hospital under my care. Her mother said she had been "paralysed, and with an impediment of speech" since she was five years old. She had had "fits" at times within the last two years. The *left* leg was somewhat deficient in power when she walked, and she was unable fully to extend the fingers of the left hand, although she could extend those of the elbow and and shoulder. She shortly ceased to attend.

Case 20.—Henry S——, aged thirty-six, was admitted into St. George's with decided hemiplegia of the *left* side, partial ptosis of the eyelid on the *left* side, and want of power in the *left* side of the face, following an attack of almost complete loss of consciousness. It appeared that about two months previously he had noticed a "dimness" coming over the sight at times, and this continued for about two weeks, when he had much pain at the right side of the head. Subsequently he had pains over all the body, and a week after that his speech became affected. He felt "as though his tongue was tied," and although he could see people near him he could not speak to them for a day or two. He improved afterwards, and then suffered the attack for the consequences of which he was admitted into the hospital. I have unfortunately no further notes of the case.

Case 21.—Joseph C——, aged forty, came under my care many years ago at the St. George's and St. James's Dispensary, after an attack of unconsciousness, which was followed by partial hemiplegia on the *left* side and defective memory. His speech when I saw him was hesitating, and he mispronounced words: thus, saying "Offord-street" for Oxford-street. Later on his speech was described as being unusually slow and cautious. I have no further history.

Case 22.—Mary A. G——, aged thirty-six, was under my care at the same dispensary as above patient in 1854 and 1856. She had had partial hemiplegia on the *left* side following an attack of acute rheumatism. She had neuralgia of the fifth cranial nerve, headache, giddiness, and other cerebral symptoms. In 1856, for some weeks after an attack, attended by unconsciousness, her speech was what is termed "clipt," and *certain words* were always mispronounced; for example, she said "tirty" for thirsty, and "tat" and "dat" for that. Further history is wanting.*

I will now add a list of chronic cases, from notes of my former hospital out-patient practice, in which some affection of speech occurred, along with hemiplegia of the *left* side, but of which I give no detailed notes beyond what refers to the articulation.

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* I shall allude later on to other cases recorded by Parry of loss of power of expression in connexion with other forms of disease.

* I have notes of two cases of hemiplegia of the *left* side placed at my disposal some time ago by Dr G. Budd. In the one the tongue was protruded to one side. In three days the patient became almost speechless, and sensibility of the skin had very much increased. In the other case the speech failed before the "fit" came on, also the eyes; mastication was difficult, the swallowing easy.

*a.* Left hemiplegia. "Speech much affected after the fit; and now at times mumbling."
*b.* Ditto. After a "fit," memory rather defective, and some difficulty in articulation."
*c.* Ditto. "Speech slightly affected in pronouncing words."
*d.* Ditto. "Speech affected."
*e.* Ditto. Ditto.
*f.* Ditto. "After an attack, in which he lost speech a little, but not consciousness at all."
*g.* Ditto. "Speech and memory affected.'
*h.* Ditto. "Words all clipt."

(*To be continued.*)

## ON

## SOME NEW METHODS OF TREATING DISEASES OF THE CAVITIES OF THE NOSE.

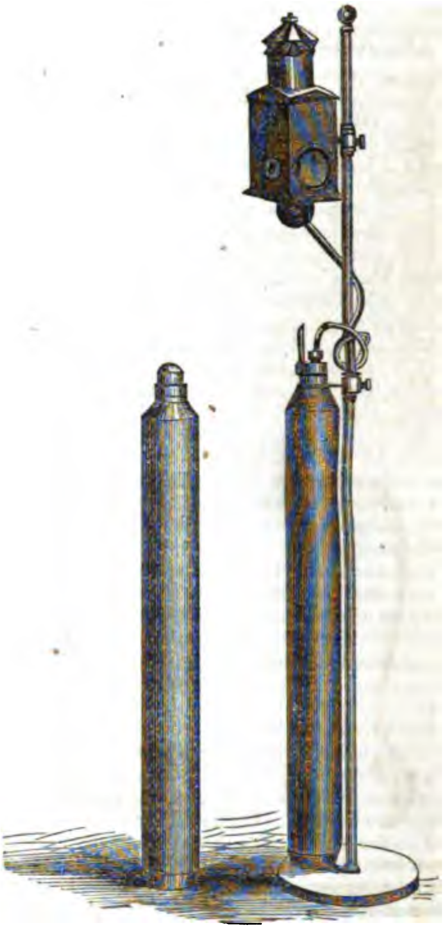
By J. L. W. Thudichum, M.D.

### I. *The Medical Lantern*

"Away now with your oil-lamps!"

Those who have tried sunlight for the inspection of the nose or larynx, and compared it with the light given out by oil-lamps specially adapted to the operation, and provided with complicated condensers, must have come to the conclusion that the latter are relatively useless. At all events, my own practice soon made me dissatisfied with such arrangements as Tobold's lamp—instruments which I found top-heavy and unstable, and whose horizontal beam of light did not satisfy my demands for inspection, much less my requirements for illumination during operations. I therefore established a platform before the window of my consulting room, in order to be able to utilise sunlight, thrown into the room by means or a heliostat, on all practicable occasions. Some diagnoses and operations which I had opportunities of making by the aid of this light, and which I am convinced could not have been made with the aid of an oil-lamp, however artfully devised caused me to construct the following adaptation of Drummond's light to medical purposes:—

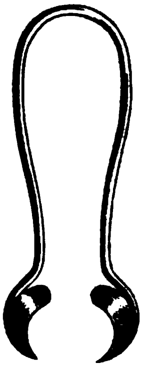
A small lantern carries the arrangements, which are required for the production of the spirit-oxygen-lime light. The glass spirit-lamp is screwed into the bottom of the lantern, in order that the level of the spirit may be always accessible to the eye. The rest of the arrangements, including an annual ditch round the burner, to be filled with water intended to cool the burner, are inside the lantern. The oxygen is supplied from an iron bottle underneath the lantern, in which it is contained under pressure produced by the condensation in it of several atmospheres of gas. A delicate screw-valve, moved by a lever, easily regulates the flow of gas. The bottle and lantern are fixed to a stand, being a brass rod screwed in a heavy circular iron plate. Any position can be imparted to the lantern by means of the ball-and-socket joint on its attached side, and the screw sliding clamp, which fixes it to the rod. The light passes through a system of condensers in front of the lantern, and can be brought to a focus at any desired distance by the sliding arrangement of the bottom of the lantern which carries the light. The instrument, including the compressed gas, is manufactured and sold by Mr. John Orchard, optician, of Kensington.

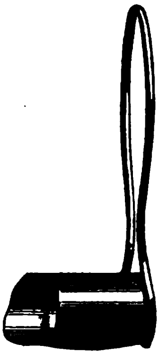


The lantern in this form is eminently practical. It is easily lighted: a match inflames the spirit, the lime is fixed by its side, the oxygen is turned on, and within a minute or two a splendid beam of light is projected from the condensers. The direction of the beam is readily adapted to the requirements of the operator. For laryngoscopy and rhinoscopy he carries the concave mirror on his forehead over a screen, which, as the light comes from above, can be so adjusted as to completely protect the eye from any incident rays, and leave it all its pupillary space for the inspection of the illuminated cavities. The lamp is put out as easily as it is lighted: the oxygen is turned off; the lime-cylinder buried in lime-powder in a suitable receptable; the spirit extinguished by a brass cap which fits into the water-ditch. The amount of gas in the bottle can always be controlled by a pressure guage to be screwed on to the top of it. A full reserve bottle is always kept in store, and any empty bottle is at any time refilled by the maker. I pronounce this apparatus (which I exhibited last year at a *conversazione* at the Royal College of Physicians and which I have now tried on many occasions during nearly two years,) to be perfect, and greatly to be recommended to the profession, particularly for application in hospitals, but quite as suitable for the consulting room of either physician or surgeon.

### II. *Rhinoscopy and Nasal Specula.*

Hitherto the inspection of the nasal cavities from the side of the pharynx, choanoscopy, has been practised much more systematically than that through the nostrils. This has arisen through the impetus given to laryngoscopy, of which rhinoscopy was considered to be a mere appendix. But the neglect of what, in contradistinction from posterior rhinoscopy or choanoscopy, I will term anterior rhinoscopy, is mainly due to the remarkable circumstance, that there were no proper specula by means of which this operation could have been accomplished. The only speculum I could find in the shops bore the name of Liston, and was not suitable for my purpose. I therefore constructed a series of specula to suit many cases and requirements, and ultimately retained the following forms as highly practical:—





Two valves are held together by a spring, and when compressed form a canal of oval bore, about ¾ in. in length. The valve which expands the ala is from ¼ in. to 3–5 in. longer than the valve which is placed against the septum. This latter inner valve should never be long enough to reach the sensitive part of the mucous membrane of the septum. It follows from this that each nostril requires its own speculum. There must therefore be for each case a right and left speculum. As the nostrils of different persons vary greatly in size, different sizes of pairs of specula must be at hand in practice. The speculum is inserted into the nostril while closely compressed; the moment the spring is liberated the nostril is fully expanded and if the operator now draws the spring, which serves also as handle, upwards, the cavity of the nose can be fully inspected. The speculum therefore is designed exclusively to expand the atrium or membrano-cartilaginous part of the nostril; if it were allowed to enter beyond this, and to reach the isthmus formed by the unyielding cartilaginous septum and the nasal margin of the ascending branch of the upper maxillary bone, it would cause pain, and narrow by its own thickness this small passage. The new specula, several sets of which have been made for me by Messrs. Weiss, cause no pain, widen the atria to the utmost extent and admit of the introduction through them, into any part of the nose, of instruments necessary for slight, delicate, or severe operations.

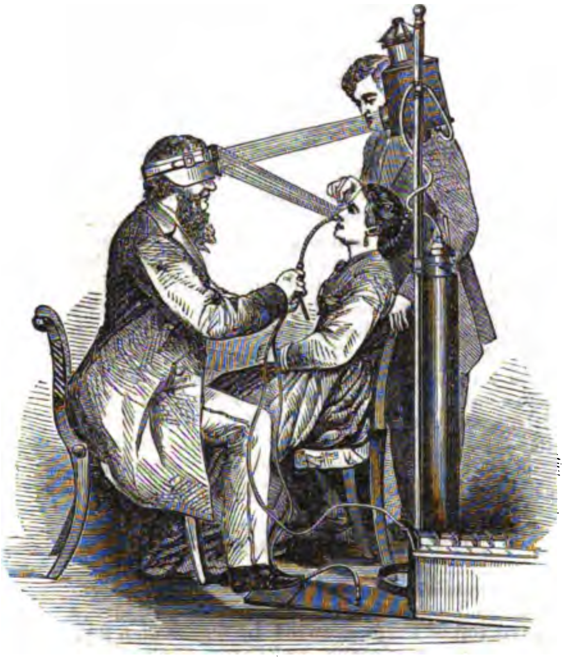
### III. *Dilatation of the Nostrils.*

I have repeatedly found it necessary to permanently dilate the nostril, in order to obtain access to the cavity for instruments. Three methods can be employed for this purpose. The first consists in the introduction into the nostril and introitus of the cavity of as many stems of the laminaria and digitata as are required to fill it. They soon begin to swell, and effect a gradual enlargement of the nostril and of the introitus by pushing the cartilaginous septum on one side. The second method is forcible dilatation by means of such an instrument as that which is termed Liston's speculum, and which has the power of pushing on one side, and, if necessary, of breaking, the cartilaginous septum. For this operation no general instrument can be described, but a special instrument must be adapted to each particular case. Great care must be taken to make the fulcrum surface of the instrument, which has to rest on the ascending branch of the upper maxillary bone, as large and well adapted to the parts as possible, in order to prevent bruising on the sharp edge of this bone, which would otherwise be unavoidable. The third mode of dilating the nostril is by a perpendicular incision on either side of the median line. Happily, the necessity for this extreme measure is exceedingly rare, but in a few severe cases it is by far the most merciful to the patient, and leads most quickly to the desired result—namely, the possibility of introducing instruments for various operations, particularly the removal of hard polypi or tumours and exostoses.

### IV. *Operations for Nasal Polypi.*

The operation for nasal polypi, as hitherto practised in all countries, consisting as it did in the tearing out of these growths by means of a pair of forceps, has always, and more particularly when I was obliged to perform it myself, appeared to me one of the most barbarous proceedings of surgery. The bruising and general injury to the nose were very great; one or other of the shell bones was mostly broken; the bleeding was always profuse; and the suffering of the patient was so extreme that it required the greatest energy on his part and on that of the operator to enable him to endure to the end. Very commonly the patient and operator had the mortification of finding the polypi to grow a second and a third time, or to relapse even more frequently than that; many persons who had had one taste of the operation dreaded its repetition, and kept their polypi. The operation could not be ameliorated so long as the instrument used for it filled the entire introitus of the nose—so long as the blades of a forceps, however thin they might be, had to be opened in a narrow and unyielding canal—so long as the objects to be seized could not be seen at the time of seizure. A usual result of the proceeding was that small polypi were jammed up into the narrow parts of the cavity, and were thus made the certain origin of subsequent growths, or so-called relapses. In almost all cases the sense of smell, which had been only impaired by the polypi, became totally lost after the operation. I therefore threw aside the forceps altogether, and endeavored to apply the electro-caustic method, which had not heretofore been used for this operation, and was rewarded with the most perfect success. Indeed, operations in the nasal cavity may now be made to vie in delicacy with operations upon the eye, and the opprobrium so acutely felt by most surgeons with whom I have had an opportunity of conversing is now removed from this chapter of science and from this drawer of the surgical armamentarium.

The operation for nasal polypi, as now performed by my new method, is represented in the accompanying engraving. Besides the medical lantern and the specula (already described) it requires the following apparatus:—



1. Platinum-wire loop-carrier and pulley, with handle. The loop-carrier must be so thin that, while it is in the nostril, the eye can see the interior of the nasal cavity. It is therefore made of two very thin gilt brass tubes, isolated from each other by a layer of unspun silk wound round the tubes and varnished with shellac. The part of the loop carrier which during the operation remains outside the nose is so bent aside or downwards that it is neither in the way of the eye nor in that of other instruments. This loop-carrier is fixed in the conducting handle, which bears the windlass. The handle and windlass which I use are copied from Middledorpf's instrument, made by Pischel of Breslau, exhibited in the last London Exhibition, and now in the possession of St. Thomas's Hospital.

2. An electrical battery of five large Grove's elements, mounted in the best style, with platinum plates and gilt incorrodible connexions. The power yielded by such a battery is sufficient to make any necessary length of platinum wire white-hot; it is serviceable for all other electro-caustic operations which occur in surgical practice; and such a battery has therefore, at St. Thomas's Hospital, taken the place of the much too powerful and unwieldy, and in the working much less economical, instrument supplied with the Exhibition instruments from Breslau.

3. Connector and conductors. Formerly, wherever the electro-cautery was applied the services of a special assistant were required to establish connexion and let the current pass. This was so highly inconvenient that I had an instrument made by the aid of which the operator could at any time make an interrupt connexion by means of his foot. In the engraving the right foot of the operator is in the act of pressing down the button fixed in the end of the board on which the battery stands, and on the under-side of which the circuit is by this action established. A spring in connexion with this button is made of such strength that the mere weight of the foot does not bear it down; it is necessary to put the foot strongly on the button in order to establish connexion.

We will now suppose everything to be arranged as in the engraving: the lantern burns brightly, and the mirror fixed over the shade before the eyes of the operator throws a brilliant light into the nasal cavity of the patient; the head of the patient is resting against the assistant, who steadies himself by means of his left hand upon the back of the chair, and with his right holds the speculum upwards, resting his thumb gently upon the patient's forehead; the loop of soft platinum wire is introduced into the carrier, and connected with the windlass; it has been white-hot a moment before, and is now cool again. Everything is ready, and the operation proceeds. The platinum loop is passed over the polypus; it is then constricted round its pedicle by means of the windlass; connexion is made with the foot, and after a slight hissing noise indicating the burning off of the pedicle of the polypus, the growth mostly yet attached to the platinum, can be withdrawn from the nose entire. There is usually no bleeding, and the place where the polypus was attached is marked by a white stripe or spot. The patient has suffered some irritation from the instrument, and perhaps been obliged to sneeze, but after the use of his pocket-handkerchief is quite ready to proceed to the extraction of the next polypus.

*(To be concluded.)*

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## A BRIEF INQUIRY INTO THE CAUSES, IMMEDIATE AND REMOTE, OF DIFFICULT DENTITION, AND ITS TREATMENT.

By J. H. James, F.R.C.S., &c.

Amongst the various conditions which affect the mortality of our species there are few which exceed in importance that of dentition. The lowest statements of its amount are very considerable, and if to these are added those which occur from the febrile diseases of infancy, falling upon those who are under-going the process, the total is large indeed. Futhermore it ought to be considered that while all other conditions which engage the attention of medical practitioners are only occasional, dentition is the lot of all who have passed the first few months of infancy. These being the facts, it might be suppose, *à priori*, that the subject would have engaged the attention of the profession in an especial manner; but although the works which are intended to deal with infantile diseases show no want of this, yet, as regards the interest it has engaged, it falls very far short of others of much less real importance. The reason is obvious: dentition, like many other things, is too common to be specially regarded. I should not, however, have intruded any observations of my own, but for two reasons. One is, that the treatment by lancing appears to be getting into disrepute, for no sufficient reason as far as I can see; and secondly, that authors, even of the highest authorithy, differ as to the mode in which it should be practised. A few instances will suffice to prove that it is so. Dr. Copeland[*] and Dr. West[†] (whose abilities entitle them to every respect) lance the gums in difficult dentition in a very modified degree, their object appearing to be simply the relief afforded by taking blood, and avoiding, rather than seeking, the division of the capsule; while Underwood,[‡] Sir J. Clarke,[§] and Dr. Joy,[||] all insist upon the necessity of relieving the tension as well as taking blood. The question, as far as I can judge, is decidely in favor of the latter practice, and although I cannot boast of the experience which these authors have had at their command, yet nearly fifty years' observation has enabled me to judge what the results have been in a very considerable number of cases; and although numerically inferior, yet as I had an opportunity of watching most of them during the whole period of dentition, and was much interested in their well-doing, I may perhaps be considered as not speaking on the subject without some warrant.

Why is dentition ever difficult? Perhaps I may be allowed to make a few remarks upon the subject, commencing with normal dentition. The nascent tooth, with its capsule, is extremely vascular and sensitive, if we may judge from the supply of vessels and nerves. When it is completed, the crown becomes coated with enamel, which has nether vessels nor nerves—in point of fact, is not itself living matter, though connected with it, and, like all other matters devoid of life while contained within the body, a disposition to be discharged obtains, until the enameled crown has escaped through the gum, the process being accelerated by the elongation of the roots, to which indeed it has been wholly ascribed; whereas, in point of fact, the softening and absorption of the living tissues to give it exit is precisely similar to what is occasioned by other dead matters; and so little is the disturbance that the tooth sometimes appears without any indication of pain. This is normal dentition.

What are the causes of dentition being otherwise than normal—in other words, what are the causes of difficult dentition? The first is local and general plethora and congestion, often promoted by too full diet, or too much heat about the head. This appears to have been considered as an especial cause; but in many cases it may be doubted whether it is not rather an effect than a cause, for a free lancing will often give effectual relief.

The second is the occurrence during dentition of any of the febrile diseases of childhood, which, falling upon the subject while dentition is going on, induces an inflammatory action and its consequences, to be hereafter stated.

Thirdly, an opposite condition, partaking more of the character of cachexia, where the child is naturally unhealthy from parentage, or is rendered so by bad nursing or feeding, or by unhealthy air. These, probably, are the most frequent causes; and the explanation I would offer is this: that whereas the extremity of the tooth is absolutely dead matter, it follows the ordinary laws of the economy as stated under normal dentition; but whereas foreign bodies in healthy people only produce a moderate degree of irritation, in the unhealthy this proceeds to the extent of active inflammation. So in dentition, the pressure of the extremity of the tooth upon the capsule excites an amount of inflammation, where the condition is unhealthy, which causes thickening and tension both of it and the gum, and reacts on the vascular and sensitive parts of the tooth within as well as of its capsule; and the various formidable symptoms which arise during dentition are the result of the influence produced on the whole system, whether it be called sympathy, or reflex action, or anything else. The local conditions now very much resemble that which is produced in other parts of the body, by the tension of unyielding membranous structures upon vascular and sensitive parts contained within them, the ill effects of such tension being but too well known. There are two points which here require elucidation. First, how is it that a cachectic state of the child should be a cause of such serious inflammation? Secondly, what treatment may be deduced from this explanation? Now it will hardly be questioned that, where a person is healthy, the irritation produced by any foreign body will be of a moderate kind as compared with that which is occasioned in those who labor under an unhealthy condition. Thus a splinter of a thorn may produce but little inconvenience in one person, and even fatal inflammation in another. This I propose as a reasonable explanation of the phenomena; and we are not without proofs that it is so, for a child who has had difficult dentition, under the disadvantages of a bad-wet nurse or an unhealthy situation, will, if the wet-nurse or the situation be changed, go through its subsequent dentitions with little comparative difficulty. That this is a fact is pretty generally admitted; and the explanation of the fact is, I would submit, that the same local cause of irritation, acting upon a healthy instead of an unhealthy subject, produces the remarkable difference.[*]

The principles of treatment may be deduced from this view of the pathology of the case. The imprisoned tooth in difficult dentition is very much in the condition of any other part of the body where vascular and sensitive parts are bound down by unyielding coverings—say paronychia, thecal and fascial inflammations. In these, although the removal of blood from the part is undoubtedly useful, yet it does not supersede the more effectual plan of free incisions, removing the tension. Fair analogy would point out that similar treatment in difficult dentition is the best. It is the treatment supported by Underwood, Clark, and Joy, and which I have myself always found remarkably successful.

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[*] Dictionary of Practical Medicine, vol. i., page 505.
[†] West on Diseases of Infancy and Childhood, p. 523.
[‡] Underwood on Diseases of Children, vol. i., p. 213.
[§] Sir J. Clark on Diseases of Children, p. 71.
[||] Encyclopædia of Medicine, vol. i., p. 519.

[*] This affords a strong proof that an asthenic state disposes to the production of the inflammation, while the same treatment may serve just as in inflammation from asthenic condition.

Everyone has observed the eagerness with which children during dentition bite upon hard substances. This has been supposed to give relief to the itching or irritation of the gums; but it is certain that it must have another effect—namely, that the edges of the incisors and the sharp points and tubercles of the other teeth, by pressing upon the capsule, effect from within their division, or assist at least to do so; and it is worthy of remark that, in common parlance, the child is said to be *cutting* its teeth. This may be held to be an argument in favor of the operation which facilitates it.

A question very naturally arises as to there being any reasonable grounds for supposing that such complete division can be a cause of injury, and what. It has been said that if the incisions in the gums unite, the cicatrices offer an increased resistance to the passage of the tooth. But this argument is disposed of by the well-known fact that new-formed parts more readily give way than original structures. Has any other objection been offered to the practice of lancing the gums in difficult dentition? I will put out of the question any injury which can be done to the enamel. Those who have suffered from instruments in the hands of a dentist will not attach much importance to what the edge of a gum lancet will do. Is there any damage inflicted on the parts beneath the surface which are not seen? I should say, on the contrary, that the relief of tension on the surface is communicated to the capsule below, and a relief afforded to the inflammatory processes there; and if this be so, the organization of the tooth is much more likely to be benefited than injured by the proceeding; and although difficult dentition may lead to future decay both of the first and second set (with which the first is so closely connected), I would submit it is from the damage done by the inflammatory processes, and not by the lancet which relieves them.

It will be remembered that I am speaking only of difficult dentition; for to meddle with a tooth which is only progressing in a normal way would be worse than useless, since in such cases a wound of the capsule would have the same ill effect that lancing a phlegmon prematurely has—it would obstruct, instead of advance, the progress of that tooth. But who would confound the pale, flabby surface of the gum in such cases, with the swollen, red, and tense condition of the parts in difficult dentition? I am not aware that any other objection has been or is likely to be urged against deep lancing.

Before quitting the subject, I may be permitted to say a few words on disproportion—a matter which seems hardly to have received sufficient attention. Children inherit the teeth and jaws of their parents, and it may be that these do not coincide. Large teeth may occur in small jaws, the result of which will be crowding of the nascent teeth into too small a space; and although this process cannot be watched before the teeth are out, its effects may be seen subsequently in the crowded and irregular position of the teeth both in the first and second set, and those who have experienced the distress occasioned by crowding in the case of the last molars can easily form a judgment of what crowding must be in a child. Thus parentage may operate in two ways: firstly, by transmitting that ill-health which is frequently a remote cause of difficult dentition; and secondly, by propagating disproportion between the teeth and the jaws. If anyone doubts the probability of such conditions, let him only compare the noble set of teeth and ample jaws of the African savage with those which are too often exhibited by the races deteriorated by civilisation (from which, however, the healthy rural population is comparatively exempt).

It would extend this memoir far beyond the limits I propose if I were to go into any details of those disorders which are allowed to be the frequent result of difficult dentition. But I may remark that they are of two kinds—one, which evidently relieves the morbid condition, and probably prevents more serious consequences, such as insalivation, cutaneous eruptions, and mild diarrhœa; the second, severe affections of the alimentary and formidable derangements of the cerebral and nervous system, or of the respiratory organs. It is in the second class of disorders that I have found efficient lancing of the gums so beneficial.

Much depends upon the *effective manner* in which this little operation is performed; for, as the old maxim has it, "heavy weights hang upon small wires." If we do not completely secure the head of the child, we may be baffled in our endeavors to carry out our measures effectually. The woman who holds the child (it had better not be the wet-nurse), seated on a low chair, lays it across her lap, so that the head may come between the knees of the operator, seated a little higher, so that it can be held as if in a vice; he will then have the jaws at his complete command, may examine them as to the necessity of interference, and if necessary lance them effectually. The incisors require a single, the remaining teeth, including the cuspidati, crucial incisions. This plan will occasion much less distress to the parent than a struggle to fix the head in any other way.

I have only now to add that I have confined my observations to the subject of lancing the gums in difficult dentition, the other modes of treatment required having been fully and ably stated by the best authorities.

**Exeter, August, 1868.**

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ON THE

# RECOVERY OF SIGHT AFTER ATROPHY OF THE OPTIC DISCS.

By Robert P. Oglesby, Esq, M.R.C.S.,

Assistant-Demonstrator of Anatomy in the Leeds School of Medicine.

To watch from day to day the changes which take place in the optic discs of patients suffering from intra-cranial and spinal mischief, is at once both interesting and instructive; and the amount of knowledge so gained by the physician must be to him most valuable. The fact that comparatively few patients suffering from early changes in the optic discs, depending on brain or spinal disease, seek the aid of the ophthalmic surgeon, renders it rather a difficult task for him to collect a great amount of evidence regarding the very earliest deviations from health which the discs undergo.

Unfortunately, patients too often seek the oculist's aid suffering from atrophied discs: the sequence of intra-cranial mischief long since passed; mischief probably already repaired; mischief not now to be defined. Such may have been a cerebral hæmorrhage, a lesion of brain-substance, or a syphilitic deposit.

I have been led to inquire how far recovery of sight be possible after the optic discs have become decidedly atrophied, and loss of vision has resulted; and, if possible, in what proportion of cases, and in how many, benefit is derived from treatment in the early stages, or recovery of sight takes place without any treatment whatever.

So far I have failed to discover any particular form of amaurosis which is more amenable to treatment than another, or any particular form which spontaneously recovers. Yet I firmly believe that, with more extended observation, we shall arrive at definite conclusions on this point.

We may affirm, without any doubt, that atrophy of the optic discs is either a curable disease, or, at any rate, capable of spontaneous recovery; for we possess ample proof that one or other of these events not unfrequently takes place.

Having met with some of these cases undergoing early convalescence, I have watched from day to day the gradual symptoms of improvement, and have reason to believe that a fair proportion of patients whose vision has been lost from atrophy of the discs recover a little sight—perhaps sufficient to enable them to earn a livelihood in occupations not requiring good vision. A much smaller proportion recover almost perfect vision, and are able to return to their usual employments.

It is a matter of great difficulty to form even an imperfect idea as to the number of those patients who regain vision, on account of the great length of time which generally elapses before recovery commences. Four, six, or perhaps more, years may intervene between the loss of vision and the recovery of sight. Until, therefore, my observations can be more widely extended, I shall refrain from expressing any opinion on this head.

The early symptoms of returning vision in these cases appear to be—first, a passing glimmer now and again of a jet of gas or the blaze of a bright fire; afterwards, a pretty correct knowledge of the situation of the light so seen. In this stage convalescence often remains stationary for a considerable time. The second stage is shown by a better judgment of the size of objects and of distance, and the patient can distinguish between an adult and a child, and begins to avoid objects likely to impede locomotion, such as chairs, tables, &c. In the third stage the discernment of colors is accomplished, and after this recovery is generally very progressive.

Some cases appear to be benefited by active treatment during the early stages, but whether such be really the case or not is at present doubtful. Some cases placed under active treatment in the early stages have rapidly recovered, as will be seen by the appended notes.

I have under my care at the present time an amaurotic patient (simple atrophy) whose discs are undergoing the first step towards convalescence. He is now just able to see a bright fire or brilliant jet of gas. This a very short time ago he could not do. I am much disappointed that I cannot trace any alteration in the color of the discs, as in the cases I am about to mention; still, I have but little doubt that he will regain useful vision. (See notes of Case 1.)

A middle aged woman came under the care of Mr. Pridgin Teale on account of failing sight. She was also suffering from locomotor ataxy. She stated that ten days previously she awoke after a good night's rest with double vision and dimness of sight. The discs presented marked atrophy, and vision was limited to 20 Jaeger. Mr. Teale kindly placed the woman under my care. Under the influence of large doses of iodide of potassium the most pleasing results followed. At first, sight began to improve; then (and I lay great stress on the following fact) the white discs began to alter in color—began to assume a more natural tint; and lastly, I had the satisfaction of seeing a healthy appearance of the discs restored, followed by good vision. (See notes of Case 2.)

A third case, of which notes are given, I had the opportunity of watching from its commencement. The patient, a boy, was suffering from optic neuritis in its early stages, accompanied by symptoms indicating tubercular mischief within the cranium. I made a drawing of the discs and used it as a means of comparison at each ophthalmoscopic examination. When first seen the discs were very large, of a deep pink and much raised, and the vessels were slightly tortuous. By degrees the redness and swelling disappeared, the vessels decreased in size, but increased in tortuosity. After a further lapse of time the discs began to assume a pale appearance, which in course of time merged into a brilliant white. After remaining in this condition for some time I was delighted to recognise the faintest possible trace of capillary tint in the left disc, which day by day became more visible, until it attained nearly a normal color. With increasing vascularity came increasing functional power, not only of eye, but of brain also, and at the present time the appearance of the left disc is normal. Vision is No. 1 Jaeger, and all brain symptoms have vanished. The right disc still remains white, and the eye is blind. I have great hopes of its ultimate recovery.

It is not, however, essential that an optic disc, once atrophied, should resume its normal appearance in order to regain its functional powers. In the remaining two cases, a lapse of time varying from four months to four years occurred before vision began to return. Both patients were totally blind, both now enjoy good vision, yet in neither has the slightest alteration in the color of the disc taken place along with restoration of vision. They remain brilliantly white.

In these cases, I conclude that the circulation is restored in the fibres of the nerve immediately before it pierces the sclerotic, and that the fibres which enter the eye participate in the healthy action which renewed circulation has imparted to those behind.

In the history of these cases, we ascertain beyond a doubt that optic discs suffering from the most marked atrophy are sometimes capable of restoration to a healthy appearance and function.

In a medico-legal point of view, the subject is extremely interesting, bearing most intimately, as it does, on the various trials for compensation after railway injuries. Can any medical man affirm that an amaurotic patient may not obtain useful sight, or even recover perfect vision?

It is interesting to observe that the cases I am recording differ remarkably as to the cause producing the disease of the optic disc. The first case was attributed to "fits" of a slight character, of which no definite account could be obtained. I am inclined to suspect that it may have been an instance of smokers' amaurosis. The second was the result of acquired syphilis. The third appeared to be dependent on tubercular mischief of brain. The fourth followed left hemiplegia, and the fifth was caused by the meningitis of rheumatism.

Case 1.—November, 1867.—James C——, aged nineteen years, suffers from atrophied discs. He states that from childhood he has frequently had severe attacks of pain in the head, accompanied by vomiting. Thirteen months ago he had an attack more than usually severe, which was followed almost immediately by a dimmess of vision of left eye. The sight of this eye remained dim for three months; he then had "horrible pain in the head," followed by dimness of right eye. Three weeks later he had two fits, which left him unconscious for a short time, and rendered him totally blind, but did not affect either hands or legs. He remained in this condition for some time (exact time not known). He then, by looking sideways, was able to descern very faintly the outline of a bright jet of gas. At the present time he can direct his hand towards any bright flame with precision. Both discs are quite white; vessels slightly tortuous.

Feb. 1868.—Now states that he has smoked half an ounce of tobocco every day for several years past. Vision: "I can tell if it be a big or a little man that is passing me in the street now." Discs unaltered in appearance.

Case 2.—C. F——, a married woman, aged fifty, came under the care of Mr. Pridgin Teale in Nov. 1866, and was transferred to my care. She came on account of a sudden impairment of vision. Married at twenty-five; never pregnant. Three or four years after marriage took syphilis from her husband. Several years ago nursed her mother during a long illness, and ever since she has suffered from shooting pains in the back and legs. She describes the pains as "jumping," and says that they prevent her sleeping at night. Sensation of numbness in the feet, as if "walking on cockle-shells." Her gait is unsteady, and she has difficulty in balancing herself when her feet are placed close together; muscular power unimpaired. Ten days ago she awoke with dimness of sight and double vision. There is ptosis of the left eyelid, and paralysis of the internal rectus of the same eye. On examination by the ophthalmoscope, both discs are found to be white, and present the appearance of simple atrophy. Vision barely No. 20 Jaeger.

Jan. 1867.—No improvement; discs very white. Left eye cannot read No. 20 Jaeger; right eye reads No. 16.

March 5th.—Ordered iodide of potassium. Under this treatment she rapidly improved.

16th.—Left eye reads No. 20 Jaeger; right eye No. 4. Discs resuming a natural appearance.

April 9th.—Reads No. 4 with each eye. Optic discs almost natural. The general health is also much improved; she walks with more steadiness; double vision has disappeared, but ptosis and strabismus remain.

Case 3.—March 26th, 1867.—Thomas R——, aged thirteen years, complains of defective vision. His mother, who accompanies him, gives the following history:—The whole of her children have shown a decided phthisical tendency. One or two have died during early childhood of consumption, and the remainder still living are all delicate. The subject of the present history is a pale, weak-looking boy, and decidedly small for his age. When two years old he suffered from "fits," which left him very weak. For the past six weeks he has complained of acute pain in the right side of the head. After this pain had existed three weeks, his sight became somewhat dim. Alarming symptoms of increasing blindness rapidly followed, and warned his parents to seek medical aid. His vision previously had been good. He has of late suffered from a heavy, numb sensation in the left arm and leg, there being a slight, though not a decided, loss of motor power in the arm.

*History of right disc.*—It is in the acute stage of optic neuritis; it is larger in circumference than its fellow, and, perhaps, somewhat more raised and vascular. The vessels are slightly tortuous; vision sees shadows only.

April 9th.—The disc remains unaltered in appearance; vision—shadows only.

24th.—The disc is less vascular and smaller, and the vessels more tortuous. The pupil is dilated, and acts sluggishly.

30th.—Atrophy of disc commencing.

May 7th.—Atrophy of disc very evident; vision—shadows only.

July 4th.—Disc small; vessels more tortuous; vision entirely gone.

Oct. 22nd.—No alteration in appearance of disc. Vision gone.

*History of left disc.*—March 26th: Is in the early stage of optic neuritis. It is less raised and vascular than the right. Vessels slightly tortuous. Vision, No. 4 Jaeger.

April 9th.—The disc is more raised, and vascularity more apparent. Vision, 16 Jaeger.

24th.—Disc less vascular; pupil dilated. Vision, not 20 Jaeger.

30th.—Vision somewhat improved. Disc commencing to atrophy.

May 7th.—Atrophy of disc very apparent. Vision improving.

July 4th.—Marked improvement in vision. Although the disc is still very white and the vessels tortuous, he can read No. 1 Jaeger.

12th.—Disc assuming a faint capillary tint.

August.—Disc almost normal in appearance.

October.—Disc quite normal in appearance. Vision, 1 Jaeger.

In this case cod-liver oil was prescribed, and the patient improved very materially in his general health under its influence. On first seeing the boy, I made a careful drawing of both discs, and used it as a means of comparison at each ophthalmoscopic examination.

Case 4.—April, 1867. Sarah H——, aged thirty-nine years, has been under observation for the past two years. She gives the following brief history. She has been delicate since puberty, having frequently suffered from bronchitis and dyspepsia. Her grandmother lost the use of one side shortly before her death, but no other member of her family suffered from paralysis. Four years ago she had two slight attacks of hemiplegia, which affected the left hand and leg. Sight was totally lost immediately after the fits, and returned only at the expiration of four months, when she could see the fire blaze. Since that time vision has gradually improved.

*Present condition.*—Vision of right eye: reads 4 Jaeger. Vision of left eye: counts fingers.

*Optic discs.*—Both discs are pearly white. Vessels small, but not tortuous.

Case 5.—April, 1867. Wm. C——, aged thirty years, suffers from atrophied discs. He makes the following statement:—"Nine years ago I suffered from rheumatic fever, and was very delirious part of the time I lay in bed. Two years after the fever I became both deaf and blind, but sight had been gradually, failing ever since the fever. I have been under Mr. Pridgin Teale's care for a long time. Four years ago I can positively say I was quite blind".

*Present condition.*—Vision: with each eye reads 16 Jaeger. Both discs brilliantly white.

Oct. 22nd.—Since last seeing the patient he has been spending some time at Harrogate and Ilkley. The improvement in his vision has been very marked, and he attributes it to his improving health. Vision: reads with difficulty No. 4 Jaeger. Discs unaltered in appearance.

**Park-square, Leeds, July, 1868.**

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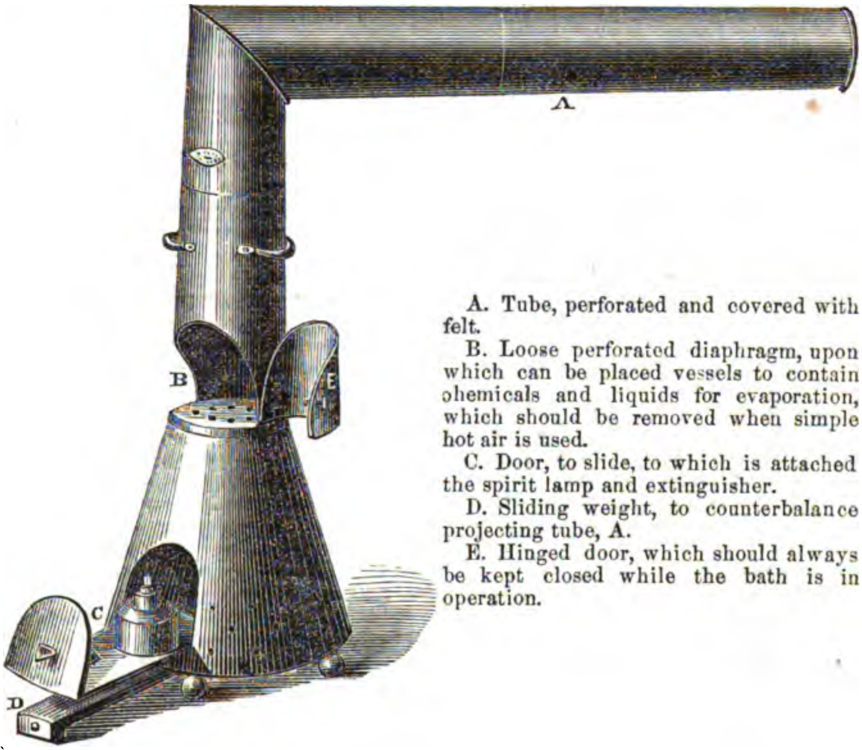
DESCRIPTION OF A

## PORTABLE HOT-AIR AND VAPOR BATH.

By Surgeon-Major Wyatt.

I desire to avail myself of the columns of The Lancet to submit to the notice of the profession an adaptation of a portable bath, for hot air, simple or medicated vapor, which I think will be found to be more generally available than any which have been hitherto employed.



A. Tube, perforated and covered with felt.

B. Loose perforated diaphragm, upon which can be placed vessels to contain chemicals and liquids for evaporation, which should be removed when simple hot air is used.

C. Door, to slide, to which is attached the spirit lamp and extinguisher.

D. Sliding weight, to counterbalance projecting tube, A.

E. Hinged door, which should always be kept closed while the bath is in operation.

I have frequently experienced the inconvenience occasionally resulting from the defects in the different forms of apparatus sold at present for the local application of hot air or vapor to particular parts of the body, and especially when fumigation by vaporised drugs is desirable; and I consider that, whether for one requirement or the other, the most convenient position, and that from which it may be anticipated the patient will derive the greatest amount of benefit, is by employing the bath when in the horizontal posture in bed, the sheets being removed during the process.

The hot-air bath has been long known to, and used by, practitioners, but I have always felt that its power of controlling many states of diseased action, with or without the addition of drugs to the vapors, has received at present but a very partial recognition; and I recollect well hearing, many years ago, when stationed in Ireland, that astute physician, the late Sir Henry Marsh, say that he considered the power of cutaneous absorption under the influence of high temperatures would, sooner or later, be proved to have a greater counteracting influence on the effects of many diseases, than the present generation of practitioners conceded to. Of the truth of this statement I have a growing conviction; and I may venture to speak with some confidence from my experience of the bedside application of simple and medicated vapors, which I have used with the greatest possible benefit in the treatment of many supposed blood diseases, independently of the specific cutaneous affections. I have found it to be invaluable in the treatment of rheumatic and gouty affections, of either the acute or chronic form; also in bronchitis and renal affections; and latterly I have witnessed its beneficial effects in a remarkably obstinate form of diabetes. I generally advise the use of the simple hot-air bath, to be followed by the employment (as soon as the diaphoresis has been modified) of the hot-water bath at a temperature of 98° Fahr., which can be conveniently arranged in the ordinary slipper bath by the bedside, and into which the addition of carbonate of soda or potash will in many cases be found of very material service. I have known patients suffering from acute rheumatic fever to express themselves as immensely soothed after being lifted into this, and beg to be allowed a repetition. But I will not presume to address those readers of the LANCET who are better able than myself to discriminate and estimate the physiological action of remedial agencies. I desire merely to claim for this particular form of air and vapor bath a degree of portability and usefulness which, so far as I can ascertain, has not been approached by other forms, the objectionable details of which have, I think, been effectually rectified in this.

The hot-air bath has been objected to, for constant use, on account of the supposed debilitating effect produced by it on the general powers; but I can only say that when the hot-water bath is subsequently used the effect is precisely of an opposite character (I presume from endosmotic action), and that its soothing influence will conduce to refreshing sleep, where this has been very unsatisfactorily produced by drugs previously administered internally. I have employed the hot-air bath for many successive nights, and a distinguished physician has informed me of an instance where it was used every night for several months in a chronic renal affection, with great relief to the symptoms.

The balanced bar beneath the base of the apparatus effectually obviates any tendency to the tilting forward beneath the bed-clothes of the upper end, which is covered with thick felt, and perforated, so as to allow of the lateral escape of the hot air or vapor, when it is required for the use of the extremities only. The spirit lamp is so contrived that the flame can be extinguished without any effort of the attendant to blow it out; and the perforated diaphragm above the lamp is movable, so that drugs can be placed upon it (through which the hot air easily permeates), on a small dish for sublimating powders, or if for generation of moist vapor only, in a vessel which is adapted to hold half a pint of water. This commences to boil in ten minutes after the lamp is lighted, and becomes dissipated in forty minutes.

With regard to the employment of mercurial fumigations, I believe that the most successful method is, first to produce a gentle diaphoresis over the entire cutaneous surface by the hot air above, and then to place the material for sublimation in the dish on the diaphragm. The vapor soon begins to ascend and to be deposited on the body, previously brought into the most favorable condition for absorption; and when, for special reasons, inunction by mercury is deemed necessary, the absorption of the mineral is much assisted by the employment, twice in the week, of the simple hot air. The cradle is made of wood and iron in sections, being contrived for packing and portability, and the whole apparatus when packed in a tin case weighs only twenty-two pounds.

I may remark, in conclusion, that, independently of any consideration of a medical character, all the requirements and comforts of a Turkish bath can be well procured by this simple domestic contrivance, with the use subsequently of the hot or tepid water arranged by the bedside in a common slipper bath. The apparatus has been manufactured most efficiently under my supervision by Mr. Nettleton, ironmonger, of Sloane-square.

## CASE OF SUCCESSFUL OVARIOTOMY.

By JOHN KEMPTHORNE, F.R.C.S. Eng., L.R.C.P. Lond.

MRS. W——, of Pillaton, Cornwall; in her fiftieth year; above the average height. Married in 1845; her husband died in 1865, of albuminuria and ulceration of the larynx. She had always been a healthy woman. Menstruation became irregular six years since, and ceased in 1864. Never had any children, nor any miscarriages. She believes that the ovarian tumour began when the catamenia became irregular, and was six years growing to the time of the operation. She was tapped at the Royal Albert Hospital, Devonport; and again about four months afterwards by myself, when a large quantity of thick, oily-looking, chocolate-colored fluid was drawn off. I tapped her after an interval of three months once more, and fifty-three pints of fluid were removed. On the day of the operation, two months afterwards, she measured forty-four inches round the abdomen by the navel. She had used warm baths every night for a week previously; and on the day preceding there was slight diarrhœa, which cleared out the bowels.

On the 29th of May, 1868, she breakfasted well between 8 and 9 o'clock, and was operated on at 1 P.M. She took no more food in the interval. The operating room had been previously prepared and warmed to the temperature of 70°. The following instruments, which had been ordered from Coxeter of London, were provided for the occasion: Spencer Well's trocar, with hooks and india-rubber tube (not required); Spencer Wells's forceps for grasping the pedicle (not used); Baker Brown's clamp; four yards of silver wire; two

Baker Brown's tubular needles; two actual cauteries, &c. These were laid out ready to hand, and covered over. Everyone having quitted the room, the patient who was in an adjoining apartment, was requested to dress herself for the operation. The dress consisted of a pair of flannel drawers, worsted stockings, flannel vest, and flannel dressing-gown. As soon as she entered the room, Mr. Kerswill, junior (of St. Germans), came to her and placed her under the influence of chloroform, with the assistance of his father; when I joined them, accompanied by Mr. Brown (of Callington) and Mr. D. Thompson (of Launceston), who arranged themselves, the one on my right and the other on my left to assist me. Basins of hot water were placed conveniently near to immerse the hands before touching any of the abdominal organs; flannels also were provided, to be used in keeping back the intestines. The room being hot, and the intestines collapsed by the previous diarrhœa, none of these helps were much in request.

I have been thus minute in detailing the preparatory proceedings, as I shall be in describing the occurrences of the case through its several stages to its final successful issue, for this reason: that country practitioners, who live some distance from any hospital, are too apt to send their cases there to be operated upon, when they have the opportunity of conducting them for themselves. Their brethern in large towns, unconnected with hospitals, seldom get the privilege of having good surgical cases placed in their hands. It therefore behoves them to throw off their diffidence, and give their patients the advantage of their skill in their own country homes. By attention to particulars, there is no reason why they might not obtain some of the success which their more fortunate brethern who are hospital surgeons carry off.

Having ascertained there was no urine in the bladder by a catheter, an exploratory incision of four or five inches was made below the umbilicus. On opening the peritoneum on a broad steel director, a little ascitic fluid oozed through the opening. The tumour, which was found adherent to the abdominal walls, was punctured by a scalpel, and the fluid allowed to drain into washhand basins, which filled two buckets, estimated to hold four or four and a half gallons, the tumour being gradually separated from its attachments by the fingers, and drawn forward as its contents were removed. Messrs Brown and Thompson supported the abdomen, pressed on the tumour, and prevented any escape of fluid into the abdominal cavity. The incision was finally extended several inches upwards above the umbilicus, when extensive adhesions to the abdominal organs were laid bare. Some were easily broken down by the fingers. One large adhesion, just below the stomach, was clamped, and cut through by the actual cautery about three inches, as well as another situated on the right side. The final attachments lay across the pelvic cavity; some were broken down, and three inches clamped and secured on the right (probably one of the pedicles), and a pedicle of four inches on the left was separated by the clamp and hot irons. On removing the clamp from the left pedicle an artery bled, which was at once secured by a needle carrying silver-wire, which was twisted, cut off close, and left in. As the different adhesions were cut through by the irons they were allowed to fall back into the abdomen. I did not consider it necessary to scrutinize very minutely the anatomical attachments of the tumour, but contented myself by taking care that every important part was out of the way of the clamp. Having satisfied myself that there was no bleeding, for which purpose I used a sponge very sparingly, I closed the abdominal walls with twelve silver sutures, passed by Baker Brown's tubular needles, the needle passing each time through the peritoneum. No strappings of plaster were used, and the many-tailed bandage was dispensed with; but a common flannel roller bandage was placed around her merely out of compliment to the expressed wish of one of the surgeons present, which got loose in the night, and was not reapplied. The tumour lay athwart the abdomen, the principal part to the right side. It was one large cyst containing groups of large cells scattered over its internal surface (multilocular). She was removed into bed within an hour of the commencement of the operation. About an hour afterwards the pulse was 84. She complained of pain in the abdomen, and expressed her fears to her sister that the tumour was not taken away. A suppository of half a grain of acetate of morphia relieved the pain. I visited her the same night at ten o'clock, and introduced another suppository.

May 30th.—Pulse 96 at noon; at 10 P.M., 110. There had been some sickness and vomiting since my midday visit; for which I ordered three minims of dilute prussic acid to be taken every hour until relieved, and a suppository of half a grain of acetate of morphia was given.

31st.—Pulse in the morning, 115; at night, 118. Taken beef-tea plentifully since Saturday; but as it appeared to make her sick, it was omitted in favor of simple farinaceous food and milk. A suppository of two grains of opium repeated.

June 1st.—Pulse in the morning, 112; at night, 104. A good deal of flatus in the abdomen. No tympanitis; and no tenderness on pressure. Suppository to be omitted.

2nd.—Pulse, in the morning and evening, 100. Vomited a little. Four sutures removed. Two small enemas of warm water and a little turpentine administered: the one in the morning, and the other in the evening. A little mutton-chop sucked.

3rd.—Pulse 95. Vomited twice in the morning. A draught to be given three times a day, containing three grains of disulphate of quinine and ten minims of dilute sulphuric acid. Pulse 94 at night. Vomited once in the afternoon. A few pieces of mutton-chop sucked during the day. Some grapes eaten. Three sutures removed.

4th.—Pulse 85 at noon. Vomited once very slightly. Bowels operated twice very slightly. Appetite improving. Ate some rabbit, and drank beef-tea. Flatus better; relishes grapes.—At 10 P.M. the bowels acted again slightly. Ate some rabbit in the afternoon, and a mutton-chop in the evening. Two sutures taken out.

5th.—Bowels operated three or four times during the night, affording relief. Sickness and spasm of the diaphragm gone. The half suppressed hiccough has teazed her a good deal the last two or three days. Appetite good.

6th.—Removed another suture. Pulse 84; appetite good; bowels opened once in the night. Continue quinine draught.

7th.—Two remaining sutures taken out. Sleeps well; appetite good.

8th.—Nettle-rash produced by eating new potatoes and green peas on the 6th. The wound suppurating, and smelling offensive. Dressings of carbolic acid and water to be used.

9th.—Pulse 85. Nettle-rash gone. Bowels acted. Matter discharging from the wound. A linen bandage to be used for a day or two.

10th.—Matter discharging from the wound and needle-punctures. Carbolic-acid dressings to be continued; and a draught containing iron and citrate of quinine (ten grains) to be taken three times a day.

11th.—Wound partly healed, but mostly suppurating. Patient looks better, and expresses herself so. Pulse 90; bowels acted.

12th.—Pulse 90. Sick in the morning, from drinking beer rather stale. Wound discharging healthy matter. Bowels acted; appetite good.

13th.—Pulse 105. A little hardness and swelling observed on the right side of the abdomen, extending to the wound.

14th.—Diarrhœa five or six times. Suppository of two grains of opium used. Matter discharging from wound and needle punctures. Pulse 97; appetite good. Has not taken any brandy since the first two or three days; prefers port wine.

15th.—Pulse 100. Bowels acted twice. Swelling continues on the right side. Tongue a little coated. Says she has a little thirst. Urine higher colored; appetite unimpaired; wound healing. Repeat opiate suppository.

16th.—Pulse 100. Hardness and swelling continue. Bowels acted once. Two drachms of tincture of chinchona to be taken every four hours in some port wine.

17th.—Pulse 97. Bowels acted once. Takes nourishment freely.

18th.—Pulse 100. Bowels not acted. Sick once after a cup of tea.

19th.—Swelling in upper third of abdomen softer. Bowels acted a little; pulse 93.

20th.—Pulse 93; wound nearly healed; appetite good; swelling softer.

21st.—Pulse 88; bowels acted.

22nd.—Pulse 77; sleeps well; sat up five minutes.

23rd, 25th.—Pulse 80.

July 4th.—Pulse 77; appetite good. Bowels regular. She never required her water to be drawn off from the first.

11th.—Walked out half a mile. Quite well.

Sept. 2nd.—Continues quite well.

I consider the success of this operation to be entirely due to the use of the actual cautery recommended by Mr. Baker Brown.

**Callington, Cornwall, September, 1868.**

## CASE OF GUNSHOT WOUND OF THE LEFT HIP TREATED ON THE ANTISEPTIC PRINCIPLE; RECOVERY.

By Pearson R. Cresswell, Esq., M.R.C.S.,

Chief Surgeon to the Dowlais Iron Works, Merthyr Tydfil.

The use of carbolic acid in the treatment of wounds and compound fractures has created quite a revolution in the surgical practice at the Dowlais Iron Works (and to give an idea of the extent of that practice, I may say that there are upwards of 8500 persons actually employed in the works); for during the last twelve months I have used it extensively in the treatment of the varied injuries that are of constant occurrence, and, I think, I may say, in every instance with marked success. Formerly, in severe cases of compound fracture, amputation was the rule; latterly, it has been the exception.

At some future time I hope to send a summary of the more important cases of compound fracture treated on the antiseptic plan; but now I give the details of a successful and very interesting case of compound and comminuted fracture of the neck and trochanteric portion of the left femur, in which there has been perfect bony union, and that without a trace of suppuration.

On the 13th of April last, at 1 P.M., I was called to see Jonadab T——, aged twenty-three, a boiler-maker by trade, who had just been shot at the rifle-range, where he was engaged performing the duties of a marker. He stated that he had run out of the mantelet, was standing in a slightly stooping position in front of the target, looking for the mark of the last shot, which was somewhere about the bull's-eye, when he felt a sharp smack on his left buttock, and immediately fell to the ground. The patient was placed on a door on his right side, and removed home at once. The ball that struck him was from a regulation cartridge discharged from a long Enfield rifle at a distance of 600 yards.

On examination, I found a small rent in the seat of his trousers, and, corresponding to this, a penetrating wound of the left buttock, immediately behind the great trochanter. The trousers being removed, I perceived, at about half an inch below Poupart's ligament, and a quarter of an inch external to the femoral artery (left), a prominent swelling caused by the ball, which had lodged, and could easily be felt lying underneath the uninjured integument; the femur was fractured, the limb shortened, and in the position of a dislocation on the dorsum ilii. I proceeded to remove the foreign body, and for that purpose placed the patient on his back, with the injured limb supported by a pillow placed under his knee, when I found that the ball had receded from the surface, and could nowhere be felt. However, on placing him again on his right side, I detected it in its old place, and at once made an incision through the skin over the tumour about two inches in length, and parallel with the artery, and easily extracted the ball with the aid of a small scoop. Hæmorrhage, which was rather free at first, soon ceased. On passing my finger into the anterior wound, I found the neck and trochanteric portion of the femur much comminuted, and removed several large pieces of loose bone; but many small fragments, lying deep and difficult to get at, were left. The wounds were closed with lint and strapping, and a long interrupted Liston splint placed on the limb. As the patient was suffering severely from shock, warm brandy-and-water was ordered, which he took reluctantly, saying that he had been a total abstainer all his life. At 8 P.M. I removed the lint and strapping, and mopped out the wounds with carbolic acid, squeezing it well into the interstices. A piece of lint, soaked in a mixture of carbolic acid and boiled linseed oil, in the proportion of one part of acid to four of oil, was then placed over both wounds, and over this a layer of antiseptic putty, and the whole covered in with lead-foil, and secured by a spica bandage. Pulse 100; skin warm; temperature of injured limb natural. To have one grain of opium powder immediately.

April 14th.—12 A.M.: Has passed a good night; no pain in the limb; no hæmorrhage; bandage stained with bloody serum; skin cool; tongue moist; pulse 100; has passed no urine; catheter introduced, and about a pint of urine drawn off. Antiseptic putty reapplied, great care being taken not to disturb the piece of lint first placed over the wound.—11 P.M.: Has no pain, but feels restless; has passed no urine since the introduction of the catheter this morning; pulse 108. Urine drawn off. To take twenty minims of tincture of opium immediately.

15th.—12 A.M.: Slept well last night; countenance placid; skin cool; tongue moist and clean; pulse 100; retention of urine still continues. Introduce catheter. Renew antiseptic putty. Sero-sanguinolent discharge very trifling.—11.45 P.M.: Expression of countenance rather anxious; skin hot; marked abdominal tenderness; pulse 100. Introduce catheter. To take twenty minims of tincture of opium immediately.

16th.—1 P.M.: Feels pretty well this morning; slept well after the draught; no pain in the limb, and but slight tenderness over the abdomen; pulse 96. Urine drawn off. Renew the putty dressing, No discharge of any kind whatever.—11.45 P.M.: Feels comfortable. Urine drawn off. Wishes for his draught. Opium as before.

17th.—1 P.M.: Feels quite well, with the exception of being unable to pass his urine. Renew putty dressing. No discharge.—11.45 P.M.: Introduce catheter, and repeat opium.

18th.—Has passed, as usual, a good night, and feels well this morning. His appetite, which has been hitherto very good, has failed him to-day. Bowels have not been moved since the accident. Introduce catheter; renew putty. An ounce of castor oil to be taken to-morrow morning.—11 P.M.: Introduce catheter, and repeat opium.

19th.—11 A.M.: He took the castor oil early this morning; it has not operated yet, and it has made him feel very squeamish. Urine drawn off. Renew the putty dressing. No discharge. The dose of castor oil to be repeated.—10.15 P.M.: Bowels have acted freely, and he has passed urine. Feels comfortable, and thinks he will be able to sleep without the draught.

20th.—Has passed a good night; appetite good; thirst moderate; shin cool; passes urine well; in fact, his general health is as good as ever; no pain in the limb; not a sign of discharge. Reapply the antiseptic paste.

May 3rd.—Antiseptic putty has been daily renewed. Health very good; no pain in the limb; no discharge; he wants to get up.

6th.—Feels quite well; no pain in the limb; antiseptic putty has not been changed since last report; not a stain on the bandages.

29th.—Removed splint and dressings, together with the original antiseptic rag, when I found over the sites of the wounds two perfectly smooth cicatrices. The limb on being measured was an an inch and a quarter shorter than its fellow. Placed the limb in a gum-and-chalk bandage, and fixed a piece of Hides' patent leather-felt splint around the pelvis and hip. To get up to-morrow.

July 3rd.—Since last report has been up and walking about with the aid of crutches, frequently showing himself at the surgery. To-day I removed the bandage. Bony union perfect. A great deal of thickening about the hip. Limb an inch and a quarter shorter than the other. Foot everted. Stiffness about the hip-joint.

24th.—Presented himself at the surgery previous to going to the country. He still walks with a crutch, but can bear the weight of his body on the injured limb for a short time; but when continued he feels a slight aching pain in the groin. Free movement at the hip-joint.

Dowlais Surgery, July, 25th., 1868.

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# REPORTS OF MIDWIFERY CASES.

By JOSIAH COURT, L.R.C.P.

The following reports of midwifery cases which lately occurred in my practice may prove interesting to some of my fellow-practitioners in the country, who, like myself, are often compelled to trust their own resources in time of difficulty, on account of the delay in obtaining a second opinion.

Mrs. S——, aged twenty-two years; first pregnancy; at her full time. She was seized with pains at 7 o'clock on the morning of Good Friday last, and sent for me at 8.30 A.M. On examination, I found the vertex presenting, the membranes ruptured, and the os uteri nearly fully dilated, but rigid. I gently dilated the os with my finger, and in about an hour's time the margin of the os slipped over the head. I then gave a small dose of ergot, after which the pains increased in frequency and strength. The head, however, did not move, although the pains were very strong, and I thought that it was impacted at the brim, either on account of its large size and hardness, or from contraction of the pelvis. I waited another hour, during which time the pains became violent, and still no advance was made; I therefore judged it best to apply the forceps, rather than allow exhaustion to take place and the child to die. I introduced, without any difficulty, a pair of Simpson's forceps; the blades locked easily, and I began to extract during each pain. For some time I could not stir the head, and then only by considerable force; but after persevering about twenty minutes I delivered the head of a full-grown child. When the forceps were removed, however, the head was drawn back again, so that the chin, mouth, and nose re-entered the vulva. From this I concluded that the shoulders were impacted, and therefore the cranium was retracted by the elasticity of the neck. During each pain I made extension with the head, but the shoulders would not move; so I passed my finger into the axilla and hooked down the right arm. Still the shoulders remained firm. I then drew the other arm down with a blunt hook, and with some trouble the shoulders were partly delivered. The patient had strong pains; nevertheless the child could not be made to stir, although traction was kept up on the arms and head. It now appeared as if the hips of the child were wedged in the pelvis of the mother, and this, combined with a large abdomen, was the cause of obstruction. I accordingly perforated the abdomen, and passed a blunt hook round one hip; and after a deal of trouble I delivered the child, which was held fast to the vulva by what at first puzzled me very much, but which I found to be a process of attachment to a second fœtus in the womb. On passing my fingers along this fleshy medium of union I discovered two legs, which were brought down, and were found to be very deformed. I then made traction upon these secondary legs, and congratulated myself that I should soon see the remaining half of the monster. For some time I pulled at the legs with each pain, but no advance was made, and the thing seemed as fast as ever. In this emergency, I passed three fingers of my left hand along the curve of the sacrum, and, high up, I found the mouth of the second head turned towards the right ilium, and therefore in a good position for passing the pelvic brim; still the head did not move in the least. On further examination, I found the bones of the head to be soft and elastic, and, assuming the case to be one of hydrocephalus, I determined to perform craniotomy. With a little care I introduced the fingers of my left hand over the back of the fœtus until the tips touched the cranium; I then passed a perforator between my fingers and the back of the child, and pushed it into the skull behind the left ear. Immediately upon opening the blades a gush of water ensued; the head then collapsed, and the remainder of the monster was expelled at the next pain. The placenta followed in ten minutes; and the woman did exceedingly well, only requiring an opiate the first night.

*Description of monster.*—The first half was a perfect child in every respect, with a large, firm, well-developed head, expansive chest, and stout limbs. The other half, or offshoot from the chest of the first child, had two legs, very much deformed and contracted; on one foot the toes were well developed, and eight in number; the other foot had only three processes, without nails. It had no arms, but was attached by its shoulder to the first child; and on the opposite shoulder a finger, with a nail upon it, was placed in the situation where the arm should have grown. The head was very large, and would hold a pint and a half of water. The eyes were defective, and not fully developed. It had a hare-lip and cleft palate.

Mrs. G——, aged thirty-five years, sixth pregnancy, sent for me at 5 A.M. on the 15th of March, 1868. On examination, I found a tumour filling the cavity of the pelvis, which I thought at first was a prolapsed bladder. She complained of difficulty in passing water; and for some time past, when her bowels were moved, she had a sensation of fulness, as if there was something that wanted to pass, and prevented her from emptying the rectum. The tumour felt soft and elastic, and was covered by the mucous membrane of the vagina. I could feel the os uteri high up in front of the tumour, dilated to the size of a crown-piece; vertex presentation. The substance filled the cavity of the sacrum so completely, and seemed altogether too far back for the bladder, that I concluded it must be connected with the rectum. By way of precaution, I introduced a catheter, and drew off about half a pint of urine, without in the least diminishing the size of the tumour. It was, therefore, not a prolapsed bladder. The pains increased in strength, and the tumour was forced downwards every time and felt very tense; so I passed the forefinger of my left hand into the rectum, and the two forefingers of right hand into the vagina, from which I learned that it was an elastic tumour, with no attachment, lying between the walls of the rectum and vagina. The rectum was quite empty. I decided that it must be a coil of intestine that had slipped down before the child's head, and got into the recto-vaginal pouch. I accordingly endeavored between the pains to reduce this hernia, if I may so call it, for the patient told me that oftentimes before her confinement she had been obliged to press back a swelling which appeared at the vulva when straining at stool; after persevering for a short time, the whole of the tumour passed up beyond the child's head into the abdomen, and has since caused no trouble. The labour went on rapidly after the obstruction was removed, and the child was born soon after. The woman remains quite free from any swelling or tumour either in the pelvis or abdomen.

Staveley, near Chesterfield, April, 1868.

## DISLOCATION OF THE METACARPUS.

By Thomas F. Raven, L.R.C.P.,

House-Surgeon to the Kent and Canterbury Hospital.

Dislocation of the metacarpus, owing to the great strength of the ligaments binding it to the carpus, and the very limited movement permitted in the carpo-metacarpal and inter-metacarpal joints, is of rare occurrence, even when produced by severe laceration and crushing of the hand. The dislocation is said to be invariably compound. Simple dislocation of the metacarpal bone of the thumb is occasionally met with, but such a luxation cannot be considered analogous to that of the other bones of the series, because, granting that it is a metacarpal bone, the first, in its articulation with the carpus, its functions and mobility, differs widely from the remaining four, which are not only less movable at their junction with the carpus, but are also firmly bound to each other. I have recently met with a case of simple dislocation backwards of the second, third, and fourth metacarpal bones of the left hand, which I think deserves to be recorded.

Thomas L——, aged seventy-seven, was kicked by a horse on the back of the left hand, and was brought to the Kent and Canterbury Hospital, on March 21st, soon after the accident had happened. Upon examining the hand, I found a prominent ridge, consisting of the carpal extremities of the second, third, and fourth metacarpal bones, projecting on the back of the hand, over which the integument was but slightly stretched. The metacarpo-phalangeal joints on the dorsal aspect of the hand presented a concavity instead of a convexity, owing to the tilting up of the carpal ends of the displaced bones. Upon placing the hands in attitude of supplication—i. e., with the tips of the thumbs and little fingers coinciding,—there was found to be shortening to the extent of a quarter of an inch of the left index, middle, and ring fingers. As there was no swelling of the hand, the outline of each dislocated bone was traced along the shaft; and the expanding carpal extremity could be clearly defined. The ligaments connecting the bones laterally could be felt, and appeared to be untorn. There was no visible deformity in the palm and the plane of the fingers was not altered.

As very little pain was felt, and there was not much tension of the skin, the dislocation was left unreduced for an hour for the purpose of obtaining corroborative testimony as to the nature of the case. The only doubt entertained was whether the heads of the bones had not been broken off, and the shafts subsequently displaced, as in a Collis' fracture. But upon careful re-examination of the hand it appeared that this could not be the nature of the injury, as the carpal ends of the bones, with the even edges of their articulating processes, could be traced beneath the skin. The dislocated bones were also measured, and found to correspond in length to those of the right hand: there was no mobility to be obtained between them, or crepitus upon attempting to move them.

The dislocation was not reduced without some little trouble, owing partially to the difficulty of grasping and making extension from the carpus. The reduction was accomplished by a rotatory movement of the metacarpus after extension had been employed. The three bones slipped back as one, but without an audible snap and no crepitus was felt.

With regard to the cause of the luxation, as there were no external marks of violence, except slight grazing of the knuckles, I supposed that having been knocked down by a kick in the chest, which he also sustained, the patient might have fallen upon the hand. He is, however, positive as to the fact of his having been kicked on the back of the hand. He admits he fell, but states that it was upon the right side, and that the left hand did not come into contact with the ground.

One or two points in connexion with the case are worthy of notice. It is remarkable that the three least movable and most firmly articulated bones of the metacarpus should have been thus displaced; and that in so old a subject the brittle bones should have better resisted force than the tough and rigid ligaments. Sir Astly Cooper states, in his work on Dislocations, that he had never seen a case of dislocation of the metacarpus, except in connexion with gun-shot wounds and other severe injuries of the hand. In R. W. Smith's treatise on Dislocations, that of the metacarpus is not mentioned. Mr. Erichsen says that no metacarpal bone, with exception of the first, admits of dislocation. On referring to the catalogue of the museum at the College of Surgeons, I find that there is there a specimen of partial dislocation of the fourth metacarpal bone backwards. It seems to have lost its connexion with the os unciforme only, being still articulated to the os magnum. I have consulted many other authorities with the view of obtaining further information about this particular dislocation; but as I have been unable to find a single record of such a case as the one which I have described, it is, as far as I know, unique.

July, 1866.

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

> Nulla autem est alia procerto noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

## MIDDLESEX HOSPITAL.

### CASES ILLUSTRATING VARIOUS EFFECTS OF LEAD-POISONING,

(Under the care of Dr. MURCHISON.)

IT is at first sight somewhat remarkable that, considering how widely known are the deleterious effects of lead, whether induced through the lungs, the stomach, or the skin, we should still see so many cases as we do in the metropolitan hospitals of persons suffering under one or more forms of poisoning by this metal. But it would seem probable that the frequency of such cases is rather to be attributed to the extreme susceptibility of certain persons to the influence of the metal than to any remarkable carelessness in the use of it. We have repeatedly inquired of such patients as to their habits in regard of cleanliness, and have seldom failed to receive assurance of the very greatest care having been taken on this point. In one of the men whose case is related below—a painter, under Dr. Murchison's care,—this was very marked. He told us that, with al the care possible, he rapidly felt the influence of the least exposure; whilst there were plenty of men in his "shop" who, to use his own expression, could "eat mouthfuls of the paint," and never suffer from it.

We, publish the cases which follow, not because there was anything very unusual in any of them, but rather because their accidental coincidences in time and place served to lead attention to the subject which they well illustrate. In each case the blue discoloration of the gums was well marked. It was, as usual, wanting in sections where teeth had been lost, and was best seen where the teeth were incrusted with tartar. In one of the patients affected with colic, it will be noted that the temperature rose upwards of 102.° Dr. Murchison told us that this was the second case which he had seen during the last six months in which this increase of temperature had taken place. The fact is an important one to remember, as there is usually so marked an absence of febrile movement in lead colic.

In three of the cases that association of gout with lead-poisoning which was first pointed out by Dr. Garrod* was noted. It will be remembered that Dr. Garrod has shown not only that lead acts as a powerful predisposing cause of gout, but that gouty persons are peculiarly susceptible of the influence of lead.

In collecting the notes of the different patients, of which we here present a condensed abstract, we received the courteous assistance of Mr. Maine, the physician's assistant.

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* Transactions of Medico-Chirurgical Society, vol. 36, 1854.

CASE 1.—Daniel N——, aged forty-six, house painter, admitted July 14th, 1868, with paralysis of extensor muscles of both forearms. This is most marked on the right side. He had been suffering for three or four days from colic. It seemed that for twenty years he had generally had an annual attack of colic, and that the local paralysis had existed for many years. He said, however, that when he managed to get away from paint, his arms so far recovered that he was able to write. There was a distinct blue line along the margin of the lower gum. He was ordered five grains of iodide of potassium three times daily, and a black draught; fish diet and porter. On the 17th, his colic being still unrelieved, half an ounce of castor oil, with twenty drops of laudanum and twenty drops of liquor potassæ in peppermint-water, was ordered to be taken every six hours till the bowels act. On the 19th, it is noted that the bowels have acted repeatedly, and the pain has disappeared. Since then the forearms, which are much wasted, have been galvanised three times a week, and there is already considerable improvement in their power.

CASE 2.—Charles C——, aged thirty, a japanner, who uses white lead and emerald-green in his business, was admitted on July 14th, with colic occurring every hour and lasting about twenty minutes. The pain was severe, but the abdomen was not tender or distended. There was vomiting after all food and drink. The bowels had been constipated since the 12th. There was a distinct blue line along the margin of the gums. His skin was cool, and his pulse 74. He was ordered half an ounce of castor oil, with ten minims of laudanum and twenty minims of liquor potassæ in mint-water, every four hours till the bowels act well; also to have a warm bath. Next day it is noted that he has taken four doses of the medicine, that the vomiting has ceased and the pain is diminished, but the bowels have not acted. Another warm bath was ordered, and a repetition of the medicine. On the 16th, the bowels had acted three times; and although there were still paroxysms of colic, the pain was comparatively slight. He was now ordered extract of belladonna, half a grain in a pill every six hours. This was followed by a bad night; and next day it is remarked that there is now no intermission of pain but severe exacerbation. Now, too, he had some pain in the ankles, knees, and wrists. Pulse 100; tongue large, flabby, and lightly coated. Complains of nausea, and vomited once this morning. Pupils not at all dilated. Bowels scarcely open, but he has had frequent calls to stool. A warm bath was now ordered; a linseed poultice with laudanum to the belly; five grains of compound soap-pill every four hours until the pain should be relieved; and a simple enema to be given next morning. The enema was followed on the 19th by the bowels acting eighteen times copiously and the subsidence of pain in the belly. There was then no vomiting. There was, however, painful swelling and slight redness of the left knee. For this, ten drops of colchicum wine with alkalies every six hours was prescribed. The pain and swelling of the knee rapidly diminished; he had no return of the colic; and on August 4th he was discharged convalescent.

CASE 3.—William S——, aged thirty-two, barman, was admitted on July 18th, 1868. He had been employed in cleaning the pewter taps &c. of the beer engines, and on July 11th, about noon, was suddenly seized with severe pain in the belly and violent retching. The bowels previously had been quite regular, and he had eaten nothing unusual. From that time till his admission the pain constantly recurred, and there was also vomiting. The pain never quite left him, and was often rather severe. The bowels did not act from the time of seizure until slightly the day before admission, after an enema. He took a great quantity of medicine—castor oil, powders, pills, &c.—without any effect.

On admission, the patient complained of severe pain in the belly, coming on in paroxysms, oftener present than absent, and never quite gone. His abdomen was not distended nor tender, and there was free movement of the parietes. His pulse was 84; skin cool; tongue moist, with white fur. There was a distinct blue line along the margin of the gums. No swelling or tenderness in the inguinal regions. Ordered half an ounce of castor oil, with fifteen minims of tincture of opium, twenty minims of liquor potassæ, and one ounce of mint-water, to be taken every four hours until the bowels act well; and a warm bath directly. At midnight he was in such violent abdominal pain that fifteen minims of laudanum were given to him in addition.

July 19th.—10 A.M.: Slept shortly after the draught, and passed a good night, but the bowels have not yet acted. 1 P.M.: Pulse 116; skin feels hot; temperature 102·5°. During the last two hours he has been in severe pain again, with retching, but without vomiting. The bowels acted for the first time about half an hour ago, and since then he has been a little easier. His legs are drawn up, but the abdominal walls move freely, and are not tender. He was now ordered a simple enema every six hours, and five grains of compound soap pill every four hours; linseed poultices over belly. To omit the mixture.

20th.—The bowels have acted seventeen times very freely since the visit yesterday, and the patient feels much better. His pulse is 84. Temperature 100·5°. Tongue moist and clean. He is in no pain, and only complains of a feeling of soreness about the stomach. He has had two enemata. To continue a pill twice daily.

21st.—Slept fairly. The bowels have acted five times since last report, the motions being relaxed, but small in quantity. The pills were continued twice daily till the 27th, and were then replaced by four grains of iodide of potassium three times a day. During this interval he had been doing well; the bowels were opened daily, but he felt very weak.

On the 29th he began to complain again of abdominal pain, which continued for two or three days, and ceased when the iodide of potassium was omitted.

He was discharged well on August 4th.

CASE 4.—John B——, aged forty-two, painter, was admitted August 2nd with symptoms of rather vague character. He had been suffering for three weeks with great pains in all his limbs, especially in the legs and left arm. He still complained of pain and weakness in the left knee, and he said that this joint, a week previously, had been swollen as well as painful. Tongue is furred; appetite very bad. Has a distinct blue line along the margin of his gums. Complains greatly of flatulent distension coming on after food, and accompanied by severe pain. He says he has had colic more than once, and his bowels are rarely opened without medicine. His pulse was 84; radial artery rigid. There was no abnormal sound of heart; lung-sounds natural; urine 1022, no albumen. Ordered six minims of colchicum wine, with fifteen grains of bicarbonate of potash, and one ounce of peppermint-water, every six hours, and a salts-and-senna draught immediately.

Aug. 3rd.—He has slept well. Has had occasional pains across the back, but is free from pain except in the left arm. His tongue is very slightly coated. Has no appetite. His bowels have been moved freely.

When we saw him on the 6th he expressed himself as feeling much better.

Besides the foregoing we saw, on one of our visits, an elderly man, who had formerly been in the hospital under Dr. Murchison's treatment, and in whom the train of symptoms was well marked: exposure to lead, colic, gout, albuminuria, epileptiform convulsions on two occasions, hemiplegia.

## GUY'S HOSPITAL.

### AUTOPSY OF A CASE IN WHICH THE SKULL WAS PENETRATED BY A CLEAVER.

(By Dr. Moxon.)

In the department of morbid anatomy, we saw Dr. Moxon conduct the examination which is here described. The case was interesting in several particulars, not the least being that the injury bore a striking resemblance to one not unfrequently requiring attention in warfare —namely, sabre wound of the skull.

The patient, Charles D——, aged sixty, was admitted into Guy's Hospital, under the care of Mr. Cock. He had been struck with a cleaver in the forehead in an Irish "row" on the 8th of August. Insensibility came on gradually on the 11th, without any great restlessness. After this his right limbs were noticed to be paralysed, or at least not to be moved, whilst he moved the left limbs. Coma was complete on and after the 12th; and he died on the 14th at 7 A. M.

The post-mortem examination was made seven hours after death. The tissue of the scalp and pericranium around the wound was healthy. The injury to the bone was a verticle cleft in the frontal above the left orbit. The cleaver had struck obliquely backwards and to the left nearly through the thickness of the bone, making on the outside a straight cut, from the upper and lower ends of which fissures ran, an upper one curving outwards for half an inch, and a lower and larger passing behind the outer angle of the orbit into the middle fossa of the base of the skull, crossing but not tearing the middle meningeal artery in the deepest part of the cleft. The inner table had given way before the edge of the weapon, and from it two scab-like pieces, one above the other, had been driven in so forcibly as to lacerate the dura mater. These fragments were about the size of threepenny pieces, and had sharp angles on their outer or left edges, but their right or inner edge was straight, and coincided with the line of the cleft, so that these fragments were driven from the outer edge only of the cleft, or that towards which the weapon, in its oblique course, was advancing. They projected into the cranium about one-eighth of an inch. The hole they had made in the dura mater was ragged, and coincided in size and position to the upper and larger of them. The brain at the same spot had a red mark, but no evident wound. There was no sign of injury to the parts on the diagonally opposite point of the cranium—i. e., no *contre-coup*. There was a considerable quantity of turbid liquid in the *arachnoid* cavity on the injured side, but not on the right side; the pressure of this liquid had emptied the *subarachnoid* space on the injured side, so that when the liquid had run off, the convolutions of the brain stood out sharply in relief from the absence of the usual subarachnoid liquid, while on the opposide side the liquid in the *subarachnoid* space raised as usual the arachnoid so as to hide the sharpness of the convolutions. This gave a curious appearance of difference to the two sides of the brain; and there was this further difference, that on the injured side a considerable number of patches of pus were beneath the arachnoid, and two or three small ones on its surface; while on the other side there was, as to the upper half of the brain, no pus to be seen, but only a patch or two of pale lymph near the Pacchionian glands. But, on viewing the base of the brain, the state of the two sides was more alike, both showing a good deal of lymph under the arachnoid. It thus appeared that the injury had set up directly, on the injured side, superficial arachnitis, with effusion into the arachnoid cavity, and also a piametritis, with formation of pus in the subarachnoid; and that the former had been limited to the injured side while the latter had crossed over on the continuous and more open subarachnoid space at the base of the skull to the opposite side, causing only a subarachnoid inflammation on that side. The tissue of the brain was remarkably firm, the firmness of the fornix and other parts about the ventricles being equally striking. The ventricles contained rather less than the usual quantity of liquid. This was turbid; and at the end of the *right* posterior cornu was a small collection of pus on the wall, yet the wall at that spot was not visibly changed. There was an entire absence of the soft commissure. No sign of it existed. The firmness of the tissue put the idea of its having been accidentally broken down in removal, &c., quite out of the question. The left pleura was universally adherent, except that at the apex of the lung there was a lax cyst of the size of an apple. This proved to be a little hydrothorax, with perfectly quiescent parietes, limited securely on all sides by the adhesion of the rest of the pleura. Some old relics of tubercle were on the pulmonary pleura, at the point in the wall of this little hydrothorax. The lungs were in a state of atrophic emphysema to a marked extent, and the left kidney was almost completely atrophied through passive distension of its pelvis, an enlargement of the right kidney to 8½ oz. compensating for the loss of the left. There were no signs of secondary disease of the viscera, and, with the above exceptions of out-of-date and unimportant accidents, they were healthy.

The chief points of interest pointed out by Dr.

Moxon were: First, the depression of the inner table, or rather of a scale from the inner face of the bone, when no sign whatever of such a mishap was to be seen from the surface. Secondly, the absence of any *contre-coup*. This was, however, to have been anticipated, he said, from the nature of the injury, because the blow was dealt with a light thing moving quickly, so that the time spent in the infliction of the injury to the bone was too short to allow any great share of the force of the blow to pass off in vibrations away round the skull to the opposite point; and hence all the force of the blow was spent at the point of contact, producing penetration, until the pace of the weapon had been slackened by resistance; but when its pace was so slackened, there was time for the remaining force to distribute itself to the neighborhood, and it did so; but as the weapon was now near the inner surface, so that a small thickness only remained, this small thickness was not able either to conduct away the vibrations or to endure them, so it gave way and was driven in fragments, the predominating tendency onwards of the force which detached these fragments causing them to move in the onward course which the weapon would have taken. It is when a blow is given by a large mass moving more slowly that *contre-coup* is found. Stated generally, this is the rule: If, in a blow on the head, the violence (*momentum*) of the blow be due to the weight of the mass which strikes more than to its velocity, then the vibrations are diffused and *contre-coup* is found; but if the *momentum* of the blow is due more to velocity than to mass, then the vibrations are not diffused, and there is no *contre-coup*. It is this limitation of the effects of sudden sharp blows on the head that allows of the recovery from fractures of the skull that have arisen from such blows. A third point of interest is in the unilateral arachnoid, with a bilateral subarachnoid inflammation. The explanation of this has been given above. It is no doubt due to the circumstance that the arachnoid surfaces fit close, so that the products of inflammation do not easily flow along between them, lighting up as they go; while the subarachnoid space is open, and the inflammatory products can hence pass down across the spaces at the base of the brain to the other side. The occurrence of paralysis on the side opposite to the injury might seem not to be explained by the arachnitis of the opposite side, as such surface inflammations do not cause paralysis at all constantly. But the evidence of *pressure* given in the empty subarachnoid space, and the prominent convolutions, offer us a proof that pressure, the great cause of paralysis, really existed, and there was not only irritation and structural change, as is often the case. Still it is a long way for pressure to reach the corpora striata from the surface; and, as the man was comatose when his paralysis was observed, it is reasonable and proper to reflect that such a paralytic state may not infer the existence of a direct incapacitation of the *motor* centres of the right limbs, but may rather be due only to cessation of some of the more properly mental functions that we suppose to be seated in the "hemispherical ganglia." Evidently we move each leg from the opposite brain; and though we are not conscious of having a mind or will for each side, yet the practically symmetrical masses of nerve-matter that grow above the locomotive machineries of the two sides plainly point out such a double arrangement, even though we are not conscious of it, any more than we are of the separate views of our two eyes. And it appears to Mr. Moxon to be quite open to us to believe that in such a state of apparent paralysis of the right leg and arm during coma the real state is a *paralysis of the left will*, from pressure on the grey matter of the left surface, the right will being in a state of less perfect abeyance. This is not quite so wild as it may look at first. Our experience of "functional" paralysis plainly shows that there is a good deal between the oneness of consciousness and the two machineries of the respective opposite sides seated in the corpora striata and thereabouts.

## WESTMINSTER HOSPITAL.

### TWO CASES OF OPIUM-POISONING.

(Under the care of Dr. RADCLIFFE.)

THE interest of the following cases lies in the employment of belladonna as an antidote to opium. The notes were furnished by Mr. C. T. Winckworth, the house-physician.

Ellen H——, aged thirty-nine, was admitted August 11th, at 10.30 A.M., having taken about three drachms of laudanum a quarter of an hour before. She was scarcely sensible. Skin very cold; pulse small and slightly increased in frequency, breathing shallow; pupils very much contracted, and fixed; was very sleepy, and said there was a mist before her eyes and she could not see. Ordered an emetic of sulphate of zinc, after which she had strong coffee and was walked about the ward.—2.30 P.M.: Turpentine and castor oil enema, mustard poultice to the pit of the stomach, and ten minims of tincture of belladonna every half-hour. To continue taking strong coffee.—6.30 P.M.: Pupils moderately dilated, and acting slowly. The mixture repeated every hour and a half for five doses. Bowels open in the evening. Was frequently aroused during the night by the nurse.

Aug. 12th.—Skin is warm, and she perspires very freely; pupils act properly; tongue dry and furred; is thirsty; throat dry; no appetite; bowels open and pulse 72 and soft.—2 P.M.: Repeat the mixture with gentian every four hours.—6 P.M.: Throat very dry; numbness and sensation of swelling in the hands and forearms. Ordered to omit the mixture. To have half a drachm of sal volatile and the same quantity of spirits of ether every four hours.

13th.—Slept pretty well last night; tongue a little cleaner; less thirst and dryness of the throat; no appetite; bowels open; pulse 90, soft; still numbness in fingers and arms; pupils regular.

14th.—Convalescent.

Martha G——, aged sixty, was admitted August 11th, at 11.15 A.M., suffering from the effects produced by sixpenny-worth of laudanum, which, she said was nearly equal to two tablespoonfuls; she subsequently told her attendants that she had taken it at 11.30 the previous evening. She was insensible, but could be aroused by shaking. Her skin was very cold; pupils contracted to a pin's point; pulse feeble; breathing very shallow, both chest and abdomen being almost immovable.

Ordered an emetic of mustard and water, introduced by means of the stomach pump; and an enema of strong coffee. Was kept awake by being frequently shaken, and the sides of the chest flapped with cold cloths.—2 P.M.: Ordered an enema of turpentine and castor oil; a mustard poultice over the epigastric region; and ten minims of tincture of belladonna every half-hour. To be kept awake by shaking, &c.

August 12th. —10 A.M.: Still very drowsy, but answers when spoken to. Skin warm; tongue dry and brown. She is thirsty; throat very dry. Bowels open once. Pulse 66, weak. Breathing less shallow, and chest moves more freely. Can see better than yesterday. Slight headache. Pupils slightly dilated after nineteen doses of belladonna. Repeat the mixture every two hours, with gentian.—9 P.M.: The mixture every four hours.

13th.—Tongue still coated; throat dry; no appetite; bowels not open; pulse 72, stronger; pupils act well. Says she feels much stronger and better.

14th.—Slept well last night. Skin warm; tongue moist and cleaner; throat less dry; she is not so thirsty; bowels open; appetite returned; no headache; pulse 72. Pupils regular, and act well. She is convalescent.

### NECROSIS OF THE COMPLETE CIRCUMFERENCE OF A PORTION OF THE TIBIA; REMOVAL; RECOVERY.

(Under the care of Mr. Francis Mason.)

This was the case of a man aged forty-six, who eighteen years ago (in 1850) fell from an omnibus, and sustained a compound fracture of the left leg at about its middle, and a simple fracture of the right. In three months he quite recovered, and remained perfectly well until October, 1867, when, without any apparent cause, an abscess formed in the site of the injury in the left tibia, which subsequently burst. On admision into the hospital, there were several sinuses leading to bare bone, from which exuded the peculiar fetid discharge characteristic of necrosis. On Feb. 4th, 1868, the patient having been placed under the influence of chloroform, Mr. Mason removed a piece of the tibia, about four inches in length, having wormeaten edges, and consisting of the entire circumference of the bone. The patient made a most excellent recovery; and although the leg was somewhat weak, he could, when he left the hospital (about two months after the operation), bear his weight upon it. The site of the operation was completely filled up with solid material. Mr. Mason took occasion to remark, that the case was interesting inasmuch as the whole circumference of the bone was involved. Such cases were rare. He also alluded to a point of practical value, upon which there has been much discussion of late—the chance the patient has of a reproduction of bone or other material in place of the necrosed portion. When he was last seen, in July, there seemed good promise of a most useful limb.

### IMPENDING SUFFOCATION FROM DRINKING BOILING LIQUID; LARYNGO-TRACHEOTOMY; RECOVERY.

(Under the care of Mr. Francis Mason.)

The operation which was performed in this case is one which there is no doubt has often been done unintentionally in the surgeon's endeavor to open the trachea. In the present instance the cricoid cartilage was purposely divided, with the object mentioned by Mr. Mason in his remarks.

A child aged two years was brought to this hospital at 1 P.M on the 26th of June, 1868, suffering from great difficulty in breathing. His mother said that at 8 A.M. on the day of admission he drank from the spout of a teapot which she had just filled with boiling water. When seen by Mr. Mason, the child had the most distressing dyspnœa, which was becoming more urgent at each inspiration. With the concurrence of his colleague Mr. Brooke, Mr. Mason opened the trachea high up, and cut through the cricoid cartilage. When the tube was introduced, which was readily accomplished, the patient was instantly relieved. In the after-treatment, the tube was taken out at intervals, in order to ascertain if the child could breath without it; but it was not until the twelth day that the tube could be wholly dispensed with. The wound in the throat healed rapidly, and the child left the hospital perfectly well on July 24th.

In his clinical observations on this case, Mr. Mason spoke of the carelessness on the part of parents in allowing their children to drink from a teapot or from a kettle—both common occurrences amongst the poorer classes. He said he had purposely opened the windpipe high up. The operation, which was undertaken with the view of affording immediate relief, was simple, and was rapidly completed. He might have performed laryngotomy, and, had he done so would have made a transverse incision in preference to the vertical one. He, however, thought it prudent in this instance, on account of the extreme youth of the patient, to perform laryngo-tracheotomy. Thus a larger tube could be inserted which, enabled the child to breathe with greater freedom, and there was less chance of its being obstructed by mucus. Mr. Mason ventured to think that many of the difficulties experienced in the operation of tracheotomy arose from the windpipe being opened too low down.

## KING'S COLLEGE HOSPITAL.

### CASES ILLUSTRATING THE TREATMENT OF HÆMORRHOIDS AND PROLAPSUS OF THE RECTUM.

(Under the care of Mr. Henry Smith.)

Those who have been in the habit of attending the practice and operations at this hospital are familiar with the method which is adopted by Mr. Henry Smith for the treatment of hæmorrhoids and prolapsus of the rectum. It consists in the use of what is termed the "hæmorrhoidal clamp," by means of which the tumours are seized and compressed. They are then successively cut off by scissors, and the divided bases of the tumours are thoroughly cauterised by the hot iron. At an earlier period nitric acid was used for the purpose of arresting the bleeding, but on one occasion some serious loss of blood occurred, and Mr. Smith has since trusted entirely to the actual cautery, which if properly applied, thoroughly arrests any bleeding.

Mr. Smith has now used this method of treatment very extensively in the most severe forms of hæmorrhoids and prolapsus of the rectum, and the success attending it has been such as to cause its adoption to a great extent both in this country and the colonies. Of the numerous cases which have occurred in the hospital, there has not been a single instance where any bad result whatever has taken place, and only one instance in which the treatment failed to cure the disease. The merit of the plan consists in its being free from danger, and in insuring for the patient a very short convalescence as compared with that following the use of the ligature. In by far the majority of the cases the patients have left the hospital on the fifth day, or within a week; and in several instances Mr. Smith has performed the operation in the out-patient room, but, except in some cases, he does not recommend this, as perfect rest after the operation is very desirable. When mucous membrane alone has to be removed the pain is so slight that Mr. Smith never administers chloroform; but when, as is often the case, there is a considerable amount of skin to be removed, he employs anæsthesia. The absence of anything like severe pain on the use of the cautery is accounted for by the fact that the clamp is lined on the back of the blades with ivory, so that the heat is not transmitted through the metal to the surrounding parts.

We will insert a few cases, to illustrate this mode of treatment, from Mr. Smith's case-book.

Case 1.—M. C——, aged forty-eight, suffered from bleeding piles for fourteen years; the hæmorrhage has continued for three days at a time, and has latterly burst out after walking any distance. On examination, a mass of bright vascular hæmorrhoidal tumours was found protruding from the anus. On the day after admission (July 20th), the bowels having been well cleared by castor-oil, the tumours were successively seized by the hooked forceps, embraced by the clamp, and then cut off; the actual cautery was applied to the base of each, bleeding being completely arrested. No bad symptom followed the operation. The bowels were kept locked up by opium until the 23rd, when they were acted upon by castor oil. She was discharged on the 26th.

Case 2.—J. C——, aged sixty-one terribly blanched by hæmorrhage from the rectum, was admitted into the hospital July 19th, with a large prolapse of the entire circumference of the mucous membrane of the gut. The operation was performed July 20th. The clamp was applied to as many as five segments of mucous membrane. Cautery also was used. The hæmorrhage was completely controlled. No bad symptom followed. The bowels were acted upon by castor oil on the 23rd; and the patient, although much reduced by the previous hæmorrhage, was able to go out of the hospital exactly a week after the operation.

Case 3.—J. C——, aged forty, admitted into the hospital on April 17th. On examination, four large internal hæmorrhoids, of a bright vascular character, protruded at the anus. The operation was performed on the 18th, four tumours being removed. Cautery completely checked the bleeding. No bad symptoms followed, and the patient was discharged from the hospitals on the 22nd.

In the following case there is presented an instance of one of the worst forms of prolapsus, and one but rarely seen. It was the case we have alluded to, where the operation by the clamp failed to produce a cure. Mr. Smith was of opinion that he did not remove enough of this prolapsed membrane. And it is probable that the removal of a greater amount of skin at the first operation would have been more useful. The effect of the treatment by a combination of the nitric acid with very free excision of the relaxed skin is well illustrated here. If this treatment had not succeeded, Mr. Smith's intention was to use the clamp again much more freely than he did at first.

Case 4.—Mrs. W——; aged fifty, was admitted in the early part of July, under the care of Mr. Henry Smith. She had an enormous prolapse of the rectum, consisting apparently of the entire coats of the bowel. The mucous membrane was smooth and vascular, and scarcely at all altered in its texture. The tumour was nearly the size of an infant's head, the surrounding skin was loose and thick, and the anus was so dilated that the entire hand could be introduced. The affection had been the source of the greatest misery to the woman for many years; and, in 1866, she had been under the care of Mr. Smith, who had operated with the clamp, removing some superficial portions of mucous membrane, and excising some slips of skin from around the anus. But the relief was only partial, and it was Mr. Smith's intention to perform a second operation; but the patient remained away until the present time, when she returned with her disease quite as bad as before. As the mucons membrane was so entirely unchanged, and as the prolapsus seemed to depend greatly upon a laxity and weakness of the anal orifice, Mr. Smith determined to try the effect of nitric acid to the mucous membrane, and a free removal of the skin around the anus.

On July 11th, chloroform being given, strong nitric acid was applied to the entire surface of the prolapsed bowel with the utmost freedom. The skin from around the anus was next removed in long and deep slips at right angles to the orifice. The bowels were kept locked up for four days, when they were acted upon by castor oil without the least prolapse. The wounds slowly healed and produced a firm cicatrix. The patient was kept in the hospital for a month without the least appearance of prolapse, and it is to be hoped that the cure will be permanent.

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## ST. THOMAS'S HOSPITAL.

### EXTENSIVE SCALP WOUND; INTRA-CRANIAL ABSCESS; TREPHINING; DEATH FROM PYÆMIA.

(Under the care of Mr. Sydney Jones.)

Susan R——, aged thirty-nine, married, was admitted on the 17th of November, 1867. She had fallen and struck her head violently against a bedstead. On admission, there was an extensive wound separating the scalp from the whole of the forehead. The flap was contused, but there did not seem to be any symptom of concussion. The skull and periosteum were reported not to have been injured. Hæmorrhage from a small artery was readily controlled, and the scalp flap was adjusted by strips of soap plaster. She was ordered to bed and an aperient was administered. Soup diet.

Nov. 28th,—Up to this date the patient seems to have progressed favorably, and the wound has healed in the greater part of its extent. Since the

23d she has been on mixed diet. To-day, however, she complains of some headache.

29th.—Shivering; the headache continuing.

Dec. 4th.—There has been shivering every day since, worst on the 3d. The headache is very violent in front; she is frequently wandering. The sight seems unaffected, and there is no difference in the pupils, which act normally under the influence of light. The bowels have been freely opened by magnesia mixture with sulphate of magnesia, ordered three times a day. There is puffiness below the line of wound, now nearly healed. An incision was made into this puffiness, and some pus evacuated. A large area of bare white bone was thus exposed, but no fracture could be detected. The urine was acid, containing an excess of urea, and albumen in small quantity. Ice-bag to head.—7 P.M.: Pulse 107; temperature 103·4°.

5th.—10 A.M.; Pulse 104; temperature 102·7°. Rarely answers rationally. Wound of forehead not discharging freely. Fæces and urine passed involuntarily to-day.

6th.—Quite unconscious, not answering when spoken to, but evincing sensibility to pain when examined. Pupils rather contracted, but equal, and acting pretty freely. Tongue dry and rather furred. Pulse 108, feeble; respiration 27; temperature 104·6°.

At 2 P.M. Mr. Sydney Jones trephined through the white bare bone. On its removal, a small quantity of pus was found between the dura mater and bone. The dura mater was discolored, soft, and sloughy-looking, and presented a small ulcerated aperture, from which there escaped a large quantity of clear, rather brownish fluid, containing small flakes of pus. The opening in the dura mater having been enlarged, there came pumping up, as she coughed, a quantity of thick material, looking like concrete pus. This was examined microscopically by Mr. Wagstaffe, and found to contain much softened down brain substance.

Ten minutes after the operation: Pulse 102, more feeble; respiration 29; temperature 102·3°. She appears rather more sensible, holding up her hand when told. Cannot speak, apparently. No spasm.—Half an hour after the operation: She articulated the word "pain." Serum, mixed with flakes and lumps, continues to exude. Pulse varying from 106 to 112; respirations from 26 to 31; temperature from 100·9° to 102·7°.

7th.—Shortly after midnight the patient was attacked with dyspnœa, cough, and rattling breathing; violent tremors, with occasional starts. During this paroxysm the pulse was not countable, the respirations were 36, and the temperature was 104·4°. The tremor subsided about 1 A.M., and she remained quiet until after 2 A.M., when she had a similar attack, rather less violent, and lasting a quarter of an hour. At 2.30 the respirations were reported 32, and the temperature 105·25°.—11 A.M.: Raises her hand when told; speaks a few words indistinctly; has frequent tremors.—11 P.M.: Pulse jerking, hardly countable; respirations very labored. To have eggs and eight ounces of wine.

8th.—2.30 A.M.: Convulsive sighing; general tremor; much worse; muttering delirium.—7 P.M.: Face flushed; pupils dilated; insensible.

She continued in this state until 2.30 A.M. on the 9th of December, when she died.

The post-mortem examination was conducted by Dr. Lees, and only the facts bearing on the case are here recorded. The trephine opening was on the left of the median line, about two inches above the orbit, and had a diameter of three-quarters of an inch. The dura mater was adherent to the margin of the bone-opening. In the cavity of the arachnoid, a thin layer of purulent lymph coated the upper and under surfaces of the left anterior lobe. In the front of the left hemisphere there was an opening capable of admitting the forefinger, leading backwards and outwards to an abcess-cavity, two inches and a half in length, and rather less than an inch in transverse measurement. This cavity contained pus, a coagulum, and broken-down brain-substance; its walls were uneven, and the brain surrounding it was softened, and showed numerous points of blood-extravasation. In the lower lobe of the left lung were two pyæmic abcesses: a larger one about the size of a walnut, near to the posterior margin of the lung, containing grumous-looking pus; and a smaller one, nearer to the upper part of the lower lobe. Both lungs were elsewhere much congested. The kidneys were congested, but otherwise nothing abnormal was detected. No pyæmic deposits elsewhere.

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## UNIVERSITY COLLEGE HOSPITAL.

### WOUND OF THE POPLITEAL ARTERY FROM SIMPLE FRACTURE OF THE FEMUR; AMPUTATION; DEATH.

(Under the care of Mr. CHRISTOPHER HEATH.)

THERE would seem to be a general concurrence of surgical opinion as to the best mode of treatment in such a case as the following—a result due, in great part probably, to Mr. Poland's important paper which was published in the "Guy's Hospital, Reports" three years ago.

For the notes of the case we have to thank Mr. Cluff, the house-surgeon.

The patient, a man aged forty-six was admitted into the hospital on the 4th of August, 1868, with the following history:—Three weeks before the date of his admission, according to his own statement, he was putting on his right boot, and while pulling forcibly at it in order to get it on his foot he felt something give way above the knee. (His right leg had been paralysed a year before—from what cause could not well be ascertained; but he gradually recovered under medical treatment, and, at the time of the accident, had nearly regained the use of the limb.) He was seen almost immediately by a surgeon, who detected a fracture of the femur in its lower third, and put up the limb at once on the long splint. He suffered a good deal of pain at the time; but still managed to bear the splint for three weeks, during which time it was left undisturbed. On the 3rd of August the pain, which had been gradually worse, became wholly intolerable, and the long splint was removed. Next day he was sent to the hospital.

On admission he presented a very blanched appearance; lips, tongue, and eyelids extremely pallid; pulse rapid and feeble. The right leg was enormously swollen throughout, and he complained of intense pain in it—most severe about the knee, but radiating thence up and down the limb. The right knee was unduly prominent, and above it a distinct depression was to be felt. The skin in front and on the inner side of the knee was somewhat reddened. On manipulating the limb, great subcutaneous œdema was found everywhere. On the inner side of the knee deep fluctuation could be doubtfully felt; but he did not complain of *especial* pain on pressure being made in this or any other situation. The right limb felt hotter throughout than the left; and pulsation was distinct in both tibials on the right side. He could move the toes of the injured limb perfectly well. He stated that he had sweathed profusely during the previous week, but he had not had any rigors.

The patient was seen by Mr. Heath on the evening of his admission. With the view of ascertaining the character of the fluid which gave the deep fluctuation on the inner side of the knee, Mr. Heath made an exploratory puncture. Nothing came from the puncture but a little blood. The puncture was closed with plaster, a large poultice was applied over the knee, and the ammonia-and-bark mixture and alcoholic stimulants were freely administered.

He passed a restless night, and was seen on the following day by Mr. Erichsen and Mr. Heath in consultation. It was agreed that fluid of some kind lay deeply in the vicinity of the fracture, and with a view to further examination the patient was brought into the operating theatre, and put under chloroform. Mr. Heath then made an incision to the outside of the puncture of the previous evening, so as to admit the forefinger, which, when introduced, readily felt the fractured ends of the bone, and detected around them a large cavity filled mainly with clotted blood. Immediate amputation was resolved on, and the operation was performed by Mr. Heath below the middle of the thigh by a long anterior and short posterior flap, the sharp end of the fractured bone being removed with the saw.

On examining the amputated limb, a large mass of clotted blood was found lying close to the bone and surrounding the fractured ends. It reached from the middle of the thigh to the bottom of the popliteal space; and at the lower part was a mass of fibrin arranged in lamellæ, which presented at the first view the appearance of an aneurismal sac. No communication was apparent, at first sight, between the mass of effused blood and the popliteal vessels, to which the fibrinous lamellæ just mentioned were closely adherent; but the azygos artery was found torn from the popliteal trunk, the torn end lying in the middle of the effused blood. The little vessel was quite impervious; on cutting out, it was found impossible to pass a probe through it. On cautiously separating the laminated fibrin from the popliteal vessels, a hole in the artery, passing obliquely through its coats, and large enough to admit a No. 3 catheter, was disclosed. This hole was about opposite the point at which the azygos artery ought to have arisen. The vein was uninjured. The fracture of the bone ran very obliquely from about five inches above the knee to the inner condyle; and the ends of the fragments (especially the lower end of the upper one, which lay in close proximity to the wound in the popliteal vessel) were sharply pointed. There was no evident disease of the bone; it was of normal hardness, and of normal appearance in every way.

The man never fairly rallied from the operation. He suffered from incessant vomiting for thirty-six hours, which obstinately resisted all treatment. He finally sank on the third day.

## WEST LONDON HOSPITAL.

### CALCULUS VESICÆ; LITHOTOMY; RECOVERY.

(Under the care of Mr. Alfred Cooper.)

We are indebted to Mr. Wyman, the house-surgeon, for the following notes:—

H. W——, aged twelve, a tolerably healthy-looking boy, was admitted into this hospital April 13th. For the last year he has had symptoms of stone. Three weeks before he was admitted as an in-patient he was examined at this hospital by Mr. Cooper, and a stone was detected. From the time of his admission till the operation—seventeen days—he had no symptoms whatever.

April 30th.—Mr. Cooper removed a large uric-acid calculus (seven drachms, sixteen grains) by the lateral operation, using rectangular staff. No hæmorrhage followed the operation.

May 1st.—The patient has passed a good night. Pulse 108. Skin cool; no thirst. The urine comes freely by the wound.

3rd.—Going on quite favorably. The bowels not having acted since the operation, a dose of castor oil was given.

8th.—A little urine passed by the urethra to-day. The wound looks indolent, and was touched with nitrate of silver.

As the wound showed no disposition to heal, the application of nitrate of silver was repeated every morning, and a lotion of sulphate of zinc—three grains to the ounce—ordered to be used. A mixture containing quinine and perchloride of iron was also ordered.

21st.—The urine has ceased to come by the wound, which is still, however, very indolent.

June 11th.—A drachm of cod-liver oil, with the same quantity of iron wine, to be taken three times a day. A lotion containing a drachm of potassio-tartrate of iron to four ounces of water to be applied to the wound. After this the wound began to heal, and is now (June 25th) nearly well. The boy is allowed to get up and go out of doors.

29th.—Discharged cured.

### FUNGATING TUBERCULOUS TESTICLE; RECOVERY.

J. S——, a laborer, aged twenty-two, was admitted into the hospital, under Dr. Cooper's care, on March 18th, 1868. He has noticed enlargement of his left testicle for about two months. He has now a large fungating mass more than an inch in diameter, connected with his left testicle. The granulations are large, and disposed to slough. The man is thin, and has cicatrices about his jaw, the result of old strumous abscesses. There are also evidences of tubercle at the apices of both lungs. Chlorinated poultices ordered to be applied. The patient put on full diet, with wine and cod-liver oil.

April 9th.—The granulating mass is cleaner, but not much smaller. Two grains of quinine, with five grains of iodide of potassium, to be taken three times a day.

15th.—The fungus has not diminished in size. Equal parts of tincture of iodine and water to be painted on every morning. Under this treatment the granulations became gradually smaller, the skin contracting and covering the sore, which had quite healed by the 25th of May, when the patient was discharged. The left testicle is nearly as large as the right, and is not tender or nodulated. It is adherent to the cicatrix.

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## NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

### A CASE OF EPILEPSY ASSOCIATED WITH LEAD-POISONING.

(Under the care of Dr. Radcliffe.)

A few days since we saw the patient whose case is here briefly narrated, and who presents other forms of nerve-disorder in association with lead-poisoning—viz., neuralgia, especially in the sciatic region, tremor, and epileptic seizures. He has only quite recently come under treatment.

Robert G. N——, aged forty, coach-painter. Has a blue line along the gums; there is constant tremor of the hands and sweating. Has had sciatica for three years, and rheumatic pains in legs, hips, and arms. Has once had colic. During the last two years he has had fits—from twelve to twenty in the year. He feels a cramp in the muscles of the jaw; his head is twisted over his right shoulder; he tries to speak, but fails to make himself intelligible; then falls, or rather throws himself down to avoid falling. Sometimes he scarcely loses his senses, but usually he becomes insensible for ten or fifteen minutes. Fourteen years ago he began to oversleep himself, perhaps twice a week; and during this he used to cry out aloud, and make faces and stretch himself out. These attacks lasted for about six years, occurring sometimes twice a week. After this they ceased, and he suffered severely from rheumatic pains and sciatica, but no recurrence of fits till two years ago. There is subjective sensation of horrible stench—perhaps three days a week; and he often has "queer sensations" as though he were going into a fit. He is now taking five grains of iodide of potassium every four hours.

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## LONDON HOSPITAL.

### AMPUTATION OF THE UVULA.

(By Mr. C. F. Maunder.)

With a view to prevent, in great measure, the painful sensations arising from the passage of a bolus of food across the raw stump of a previously elongated uvula, Mr. Maunder proposes to amputate this organ by the double flap method. These fall together, and their cut surfaces being in contact, no raw surface is exposed to irritation. He recently adopted this plan with a highly satisfactory result, introducing a small suture to maintain coaptation of the flaps.

# Clinical Records

OF

# THE PARIS HOSPITALS.

## HOPITAL NECKER.

### FOUR CASES TENDING TO ILLUSTRATE THE ABSORBING POWER OF THE BLADDER.

(Under the care of Dr. Guyon.)

The following cases will be found of interest as assisting to elucidate an obscure point of physiological therapeutics which has given rise to much difference of opinion. Sir Henry Thompson, in his lecture on Cystitis and Prostatitis, mentions that injections of anodynes into the bladder are of hardly any value, and that the quantity injected matters little, because the mucous membrane of the bladder appears to have no absorbing power; whilst in a preceding number (Oct. 19th, 1867), Dr. Braxton Hicks, in a lecture on a similar subject, states that he has derived the best results from the employment of injections of morphia. The following clinical observations, and particularly the fourth, would appear to support the latter opinion. We are indebted for both the details of the cases and the remarks which precede and accompany them to Mr. Edward Alling, Dr. Guyon's talented house-surgeon.

There exists a wide difference of opinion between medical men with regard to the absorbing power of the mucous membrane of the bladder. In the number of the *Gazette des Hôpitaux de Paris* for March 7th, 1868, may be read a summary of the results of the more recent French researches upon this subject. These results are highly contradictory. Thus the Messrs. Ségalas, whose experiments were performed upon various animals, fully admit this absorbing power of the bladder. M. Demarquay, whose researches were confined to the morbid human bladder, considers this organ as barely capable of absorbing medicinal substances. MM. Kuss and Susini, on the other hand, absolutely refuse to admit this property. It may be well to say that these experiments were confined to the healthy bladder in man. The practical results derived from the observation of the four following cases would tend to prove that if the absorbing power of the bladder is not great, it does really exist as well in the healthy as in the morbid condition of the organ. The effects of injections with chlorhydrate of morphia were carefully studied as to the light which they might reflect on this point. The injections were made by means of Pravaz's large syringe, and of a small elastic probe *à bout olivaire*, which enables the operator to keep a correct account of the quantity of fluid introduced. Each drop of the solution contained two milligrammes of chlorhydrate of morphia.

Case 1.—N——, aged forty-five, was admitted into the hospital on Feb. 16th. She had been suffering from cystitis for the last five months, and for six weeks has been unable to maintain the recumbent position for any length of time. She gets little sleep, and consequently has lost flesh, while her features bear the expression of pain.

An injection of thirty drops of chlorhydrate of morphia (sixty milligrammes) into the bladder, which was first evacuated. No relief.

Feb. 17th.—Same quantity injected. Slight relief.

18th.—No injection was given in the morning, and the patient complained she suffered more than previously in the afternoon. At five P.M., sixty milligrammes of the same solution were injected. This gave notable relief till near midnight. During the night she passed urine only ten times, whereas before being admitted into the hospital she used to discharge urine forty and fifty times in one night.

21st.—Half an hour after the administration of an injection of thirty drops (same solution) symptoms of narcotism manifested themselves—congestion of the face, drowsiness, incoherent talk. Her neighbors in the ward said that she looked like a "drunken woman." No vomiting. This condition lasted till three o'clock. The same evening thirty drops were again injected, but with no fresh symptoms of narcotism.

22nd.—Thirty drops injected in the morning, but the evening injection was withheld. The next morning she complained of this, saying that she had no sleep the whole night, and had suffered intense pain.

23rd.—Three injections of thirty drops each were administered, with considerable relief to the patient. From this time to the 30th of April the injections were continued, with the same favorable results as above mentioned; but the disease was then complicated by inflammation of the right kidney, and the treatment was suspended.

CASE 2.—M——, aged thirty-one, was admitted into the hospital on Feb. 19th. Has been suffering from cystitis for ten months. Thirty drops of the solution were first injected, and the very next day there was much relief.

Feb. 22nd.—Injection of twenty-five drops twice in the day.

23rd (fourth day after admission).—The patient asserted that for six months he has never experienced the relief which he now feels after the injections of morphia.

25th.—Injections suspended.

26th.—The patient said he had suffered considerable pain during the night. The injections were resumed; and the introduction of thirty drops of the solution into the bladder gave immediate relief.

From Feb. 28th to March 4th twenty drops only were injected every morning, with no increase of pain.

March 4th.—The patient suffered somewhat more; but, instead of increasing the quantity of morphia, an injection was administered with sixteen drops of a solution of bromide of potassium. These injections were continued till March 8th without abating the pain, whilst they were followed by much burning.

All local treatment was suspended until March 26th, during which times the pains, though persistent, were more or less intense. At the end of this period, however, they increased considerably; when, on an injection of thirty drops of the solution being administered, the patient experienced notable relief. The injections were then continued till the 12th of April, at which time symptoms of inflammation of the left kidney became manifest.

CASE 3.—A——, aged thirty-five, was admitted into the wards on March 14th. Cystitis of one month's duration. Fifty drops of the solution were immediately injected; and on the very next day there was considerable abatement of the pain. Next, sixty drops were given on two separate occasions, with the same good effects.

On the 21st (seven days after the patient's admission) it was stated that he passed water only four or five times during the night; whilst before his admission he was obliged to discharge urine every five minutes.

24th.—Thirty drops only were administered for the whole day. The next day the patient said he had suffered much more than he did generally. It was decided that the same dose should be tried for a few days; but the pain became so intense that the full dose of thirty drops, twice a day, was recurred to with immediate relief to the patient.

CASE 4.—A——, aged seventeen, was admitted into the hospital on March 7th, with neuralgia of the left ovary. The disease had manifested itself at the age of fifteen, simultaneously with menstruation, and had persisted since then, increasing in intensity at every menstrual period. The patient on every such occasion was compelled to lie in bed. She presented no symptom of disease in connexion with the bladder. On the very day she was admitted subcutaneous injections with chlorhydrate of morphia were resorted to. The sensitiveness to the remedy was so great that though only half a centigramme was administered, it brought on vomiting. By degrees, however, it became possible to inject half a centigramme twice in one day. The pain abated considerably. On the 12th the menstrual discharge appeared, and was attended by much less suffering than usual.

On the 17th, M. Guyon bethought him of trying injections of morphia into the bladder. Twenty milligrammes were administered twice the same day. This was attended by no accident; and the relief which had been obtained by means of the subcutaneous injections persisted.

22nd.—As the solution of morphia, composed of two milligrammes to a drop, was wanting, Mr. Alling thought he would give a subcutaneous injection with half a centigramme of morphia, in order to afford some relief to the patient. The next morning she, of her own accord, stated that she had decidedly not derived the same relief from the subcutaneous injection as from the preceding injection into the bladder. The vesical injections were therefore resumed. Twelve drops morning and evening were administered; and the patient declared that she felt great relief as soon as the first injection had been given.

From the 24th to the 31st of March there was no occurrence worthy of being noted; but on the 1st of April, after the administration of the usual injection in the morning, the patient felt symptoms of intoxication, which she spontaneously summed up thus: heaviness of the head; drowsiness; congestion of the face. This condition lasted for from five to six hours. It must be stated that on the eve she had taken forty-five drops of morphia; while her peculiar sensitiveness to the remedy above mentioned must be borne in mind.

April 2nd.—The injections were discontinued, and bromide of potassium was tried in their stead, but with no good result. The patient's sufferings increased immediately; and in order to continue the treatment it became necessary to employ, simultaneously, subcutaneous injections with morphia.

"I have not space enough," concludes Mr. Alling, "to discuss these details as I would like; but I shall endeavor to sum them up briefly. In the first place, the efficacy of injections into the bladder seems evident. We see in Case 1 that the pain speedily abated, that the desire to pass urine was diminished in a remarkable degree, and that sleep was restored to the patient. In Case 2 relief was most speedy, since on the fourth day the patient declared that he had never felt such comfort for the last six months. In Case 3 the patient soon experienced relief. Sleep was restored to him; for whereas he had been obliged previously to pass urine every five minutes he was so much better that he discharged urine only four or five times a night. I have had occasion in other cases to state a like amendment of the same symptom. But it is mostly with our fourth case that there would be need to insist upon the particulars. Here the bladder was healthy, and M. Susini's experiments seem conclusive in favor of non-absorption in such cases. How then are we to explain the persistent relief derived from the employment of the injections, and the increase of pain, as soon as these were stopped? With regard to the occasion when symptoms of intoxication were experienced, it may be objected that there was some slight breach of the mucous membrane. Obviously I cannot prove that this was not the case, though I am quite confident it was not. Before concluding, I must note the fact that, in this last case, each injection was followed by a sensation of burning, which was sometimes very intense, and lasted for from five to ten minutes. I know not, however, what part this symptom may play in the act of absorption, which seems evident to me in this case."

# Medical Societies.

OCTOBER—NOVEMBER.

## ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

### THE TORSION OF ARTERIES AS A MEANS OF ARRESTING HÆMORRHAGE WITH EXPERIMENTS.

BY T. BRYANT, F.R.C.S.

The author commenced his communication by alluding to M. Amussat's original investigations on torsion made in 1829, and by giving some brief outline of the history of the subject. He noticed the earliest introduction of the practice into England by Mr. Costello in 1834, and expressed his belief that the practice had not been generally accepted because it was introduced before its time—that is, before the introduction of chloroform. He recognised the fact that within the last few years surgeons have become clearly dissatisfied with the application of the ligature to divided vessels, and enumerated the objections which have been brought forward against the practice. He gave full credit to Sir J. Simpson for having prominently brought forward the subject before the profession, and for having suggested his plan of acupressure, which is now under trial by the profession. He stated also that it was from Professor Syme's letter to The Lancet, that he had been induced to inquire into the subject of torsion and to make his experiments. The two methods by which torsion may be practised were then described—the "free" and the "limited." In "free" torsion, the end of the artery should be fixed by a pair of clasp forceps, and twisted freely. In "limited" torsion, the artery, having been drawn out of its sheath, should be fixed transversely about three-quarters of an inch from its divided extremity by a pair of clasp forceps, and held steadily; whilst with a second pair of forceps the free end of the vessel should be twisted freely, as in the former kind. The object of the first pair of forceps being to fix a limit to the twisting of the vessel, and prevent the artery being separated for any distance from its vascular attachments. Three or four complete revolutions of the forceps are enough for small arteries, six or eight for large. The author then passed on to relate his experiments on animals. The first six were upon the carotid and femoral arteries of the dog. In all free torsion had been employed to both ends of the divided vessel, and in all with success. The seventh and eighth experiments were upon the carotid artery of the horse. In these limited torsion was used, and in both with success. In all these instances the animals were subsequently destroyed, and their vessels carefully examined. Special notice was then drawn to the particulars of a case in which the author had applied torsion to the brachial artery, in its upper third, of an old woman aged sixty-eight. The torsion proved quite successful, but the patient died from thoracic complications, and this allowed an opportunity of observing the changes the artery had undergone. The physiological conditions of the arteries which had been subjected to torsion then received attention; the results of every experiment were carefully described, and the different points illustrated by drawings and preparations. The results of numerous experiments upon the arteries of the dead subject, both healthy and diseased, were then given, and these went to confirm in every respect the observations obtained from the experiments made upon the living. A careful *résumé* of the physiological effects of torsion was then made. Some remarks upon the experiments followed, and a comparison was drawn between the effects of torsion on the vessels, and the ligature, and acupressure. Some practical points connected with the application of torsion were noticed, and the necessity of employing right instruments was enforced. A general summary of the whole subject was then made, and the following conclusions read:—1. That hæmorrhage may with certainty be arrested by torsion from even the largest vessels. 2. That it is a safe and judicious practice in all cases in which the vessels are small or of moderate calibre; and that, as far as experiments and practice yet prove, it is equally so in arteries of the first magnitude. 3. That torsion may be "free" or "limited," the free method being applicable to vessels of moderate size, and even to the largest of the extremities, limited torsion being more adapted for the large and loosely-connected vessels. 4. That in torsion, as in the ligature, the permanent hæmostatic processes are alike due to the sealing of the divided inner and middle tunics; but that in the ligature there is only an irregular division of these tunics, whilst in torsion there is a complete division, separation, retraction, and valvular incurvation. 5. That in torsion the twisted cellular coat forms, with the retracted and incurved middle coat, the direct mechanical obstacle to the flow of arterial blood in the same way as the compressed cellular coat does in the ligature, but that in torsion the twisted cellular coat and incurved middle coat, become subsequently a permanent means of occluding the end of the artery whilst the ligature of necessity becomes subsequently a source of irritation, and too often a means of undoing what has been done by nature's own hæmostatic processes. 6. That in torsion the twist in the cellular coat of an artery, the division and subsequent retraction, incurvation, and adhesion of the middle coat, and the coagulation of the blood in the vessel down to the first branch, are the three points upon which its temporary as well as permanent safety depends, whilst the permanent safety of acupressure rests upon the last point alone, and its temporary effects upon the pressure produced by the needle. 7. That there is every reason to believe that when torsion has been successful on its first application, the fear of subsequent hæmorrhage is altogether groundless, for there is nothing, as there is in the ligature, to interfere with the physiological processes set up by nature to occlude the divided vessel, and, unlike acupressure, the temporary obstacle to the flow of blood becomes a permanent one. 8. That upon physiological grounds torsion has decided advantages over the ligature and the acupressure-needle, and that if subsequent experience confirms what has been hitherto observed in the experiments on animals and the application of the practice in the human subject, we shall have gained a point of no mean importance and simplified surgery in no slight degree. The paper was concluded by the author stating his belief that the practice was a safe and valuable one in many cases, if not in all; that it was not a crude idea, based upon a theory spun out of a fertile imagination, for it had its origin in observation of nature's own processes; that it was based on the well-recognised physiological principles of natural hæmostatics; and that it was artificial only so far as the surgeon's art was employed in rendering these processes most available. Models, drawings, and preparations were freely used to illustrate the subject.

# Editorial.

## DR. GULL'S ADDRESS IN MEDICINE.

The selection of Dr. Gull to deliver the Address in Medicine before the British Medical Association at Oxford always commended itself to us as a very happy one, and it has been abundantly justified by the address itself. The profession must have anticipted this address with considerable interest. Dr. Gull is, at present, we may say without offence, one of the most popular physicians in London. And although popularity in a physician is not always a proof either of greater learning or greater wisdom than is possessed by the less popular, yet it is not to be despised. It is at least interesting to know the character of those thoughts upon medicine which are generated by such a busy consulting life as Dr. Gull's. In this view the address will probably surprise many persons. It is scarcely the kind of thing which they will have expected. They probably hoped for some pleasant therapeutics; some happy and practical suggestions for the ready recognition of common diseases; some hints as to the management of sick human nature, of which Dr. Gull seems so great a master. Any such hopes will scarcely be realised. And yet Dr. Gull's address is not disappointing. It is all the greater for its generalisations, and its commentaries upon a few of the great medical doctrines of the period. It lets us see that the busiest and most practical physicians have leisure, not only to acquaint themselves with these, but to form very decided opinions upon them. Indeed, any careful reader of the address will see that all its doctrinal and general parts abound in suggestion for the clinical detection and treatment of disease. We shall content ourselves with noticing a few of the principal points made by Dr. Gull, very heartily commending the whole of his discourse to the study of our readers.

Dr. Gull is right in demanding an unstinted recognition of clinical medicine as a distinct scientific department. He says very truly, that the knowledge of all other sciences would be compatible with entire ignorance of the department of clinical medicine. The reverse of this indeed, is not true. It would not be possible to have an intelligent knowledge of clinical medicine without some acquaintance with collateral sciences. But medical men must accept most of their information on collateral sciences from those who specially devote themselves to their study. What chance is there, for example, of busy physicians and general practitioners investigating the fine points of physiological chemistry which are at present disturbing the whole philosophy of Liebig's system of animal chemistry? Taking even our physiology and chemistry very much at second-hand, we have in clinical medicine *per se* a department big enough and difficult enough for the acutest intellect and the greatest energy. It will require these qualities "to see the facts of human organisation in their special relations, in which," according to Dr. Gull, "the very perfection of the work of the clinical student lies." Every individual and every several organ and tissue have an interest for the medical student, apart altogether from anatomical and physiological facts. The liability of tissues and organs to disease is wonderfully special. All we can yet do is to ascertain facts in this direction. Already we know a few that are very guiding in practice, as they are wonderfully inexplicable in theory. What can be more striking than the immunity of the jejunum from disease, notwithstanding its vascularity and the activity of its cell-growth? This is a purely clinical discovery, and, so far, is only of clinical use. But it suffices to show—what, in instancing it, it was Dr. Gull's design to show—that the clinical department includes facts so curious, so special, and withal so practical, as to justify the separate and devoted study of it in the light of histology and comparative anatomy and pathology.

Dr. Gull remarked, as we have often of late years had occasion to do, on the rarity of acute idiopathic disease as compared with its supposed frequency in former times. The works of the older physicians treat of little else than acute disorders, and they treated these in a very acute fashion. Now, excepting pneumonia, itself not very common, how rarely do we meet with acute inflammations, apart from special states of the system, or poisons introduced *ab extrâ*. The change, we believe, is not so much in disease as in our notions about it, and in the recognition by modern physicians of the relations of diseased conditions to time. A certain chronicity, if we may use the word, enters largely into our notions of the character of diseased processes. Excepting the case of idiopathic fevers and comparatively rare cases of acute inflammation, we are not apt to regard attacks of severe disease as really so recent and defined in their origin as they appear to the patient. In this connexion it is important to notice Dr. Gull's disposition to think less of the element of diathesis, or, to speak more accurately, of the difference between those various forms of perverted nutrition which we call inflammation, and cancer, tubercle, and other similar products.

> "Although for practical purposes it is convenient to intensify the differences between cancer, tubercle, and the inflammatory process, we have abundant evidence of intimate relations between them. Thus the children of parents dying of cancer are not rarely tubercular, and those of the third generation are liable to various forms of chronic inflammation; whilst in the same families are healthy individuals, in whom we can discover no evidence of any special morbid tendency. It is not improbable that that which seems most special to us in cancer and tubercle may depend more upon gradation than change of diathesis and that both are allied to more common degenerations."

This tendency in recent pathology to see no sharp line of demarcation between processes and deposits apparently so different, cuts two ways. It shows, on the one hand, how careful we should be in drawing conclusions from the termination of particular cases that we had dogmatically classified; and on the other, it justifies every hopeful effort in hygiene and in medicine for maintaining or restoring the nutrition of tissues even in individuals whose special history is unfavorable. We may be sure that this special history is of the greatest moment as a guide to the physician, whether or not it be that diathesis is a more or less defined thing than we have been accustomed to think. Medicine has aimed lately as much at the treatment of diathesis as of disease. And in this largely consists its improvement upon older medicine.

A very important part of Dr. Gull's address is that in which he treats of an old doctrine that has lately been revived, and is very lively in some directions—the doctrine of elimination of morbid poisons. Dr. Gull admits the elimination of gross chemical poisons, but decidedly shows reason why we should hesitate to apply this doctrine to the case of organic poisons, such as we suppose to be the cause of the various contagious diseases. It is impossible to exaggerate the importance of this subject, even in a therapeutical point of view. The eliminative doctrine has lately been warmly advocated and energetically practised with reference to the case of cholera. Moreover, a very distinguished physician has gone slightly out of his way to give it the sanction of his great name in regard to the cause and the cure of cholera. In these circumstances we earnestly recommend Dr. Gull's observations on it to the profession. He sees some relic of the days of ignorance in the whole theory of zymosis as applied to contagious diseases. He still sees in our therapeutics the governing idea that disease is an entity to be cast out rather than a process to be respectfully recognised and gently guided. "The recovery and subsequent immunity from fevers are produced," in Dr. Gull's opinion, "by a process of impregnation and assimilation and not, as was early believed, and is still by some maintained, of elimination." If the cause of disease ever consists of an actual entity it is in the case of the contagious fevers. There is a distinct *materies morbi* which can be carried about and kept in drawers and on articles of dress. The same is probably true of cholera. But whether the diseased processes which this *materies morbi* gives rise to in the body are to be regarded as mere modes of elimination to be encouraged, or as special and inevitable tissue changes "leaving a permanent and residual effect," is still a question among physicians. It seems to us that Dr. Gull is right in his condemnation of the eliminative theory. It is a huge assumption in the present state of our knowledge to think that we can expel from the system morbific poisons. The secreting structures have no natural attraction for such poisons, and the destruction of these structures is apparently often a most fatal part of the diseases to which these poisons give rise.

We have more than exhausted our space without noticing several very important parts of Dr. Gull's address. If we have said enough to induce the study of it we shall be satisfied.

## PROFESSOR ROLLESTON'S ADDRESS IN PHYSIOLOGY.

THE addresses of Professor Rolleston and of Professor Haughton at Oxford, though in many ways they differ from each other, are yet remarkably alike in two important particulars. Each is the work of a physiologist who, though fully acquainted with practical medicine, is nevertheless by present circumstances placed outside the rush and struggle of "practice," and can look calmly at the great problems in science which from time to time present themselves. And each is notable for the courage and directness with which it approaches the consideration of questions which, for the sake of peace and quietness, inferior men would have preferred to leave enveloped in a doubtful haze of generalising expressions. What true scientific liberality is at its best was never more worthily shown; and we hardly know whether to give the greater credit to the Oxford professor, who, standing in the divinity schools of his own High Church and Tory University, had the courage to treat with open contempt the conceited ignorance of Mr. Disraeli's attack on Darwin in the interest of "the angels;" or the Dublin clergyman, who dared to tell his audience that *à priori* arguments from final causes and from the supposed generally benevolent designs of nature were capable of leading those who trusted in them to commit wholesale medical manslaughter. We may add that there was yet another respect in which the speakers resembled each other, which those who did not hear them cannot appreciate—namely, that each was singularly eloquent. Perhaps the brilliant wit and vivacity of the Irish professor were most calculated to take his audience by storm at the moment; but those who, remembering the easy and seemingly effortless flow of Professor Rolleston's discourse, sat down to study it in detail in our columns of last month, must have been astonished to find that they had been guided by a facile hand through a wide range of the most difficult subjects in biology.

The task which Professor Rolleston had set himself was of the hardest; for scarcely anything can be more trying than the effort to compress into moderate space a view of the higher science which shall vindicate its practical utility; yet we think he has fully succeeded. A few of the topics which he made prominent deserve some mention here, because, though everyone should study the lecture for himself, there are some landmarks in it to which attention may well be directed. The first of these—the subject of the relation of pain and tenderness to spasm and relaxation respectively—is a perfectly amazing instance of the way in which the obvious teachings of science are neglected in practice. It is now seventeen years since the demonstration of the true functions of the sympathetic, and of the actual results of cutting off its influence, was made public; and for several years past the English authors to whom Professor Rolleston referred, have persistently pointed out the obvious inferences to be drawn from these facts, agreeing as they do, in a most wonderful manner, with the facts concerning pain and spasm to be observed at the bed-side; yet to this hour we constantly hear and read remarks which tacitly assume the exact vital equivalence of (1) active pain; (2) passive tenderness; (3) the convulsive tendency; and (4) physiological hyper-repletion; an assumption which involves the largest number of fallacies which could possibly have been got together, and which it is astounding to find partly supported by such able authors as Niemeyer and Dubois-Reymond, not to speak of the multitude of practitioners in this country who still fly instinctively to local bloodletting for relief from pain or arrest of convulsion. Not less surprising is the incredulity which still prevails, not merely among the rank and file, but among high authorities, as to the direct interference of the nervous system in nutrition. The arguments, which are repeated *ad nauseam* by those who profess to be followers of Virchow, as to the proof of independent local cellular life given by such experiments as that of passing a thread through cartilage, are properly met by the argument of Professor Rolleston, drawn on the one hand from such *positive* facts as those, e. g., which Lister revealed in his papers on the concentration and diffusion of the frog's pigment, and many equally striking, and agreeing on the other hand with the important differences between the relative prominence of the local ganglionic system and the central nervous system, in the higher and the lower animals respectively. And here we take leave to say that there both has been and is a strange want of perception among many scientific men as to the true significance of that order of phenomena which is called the "differentiation of functions," and consists in the constant increase, in the upward scale of the animal kingdom, in the exclusiveness with which special organs are reserved for *single* functions; an order of changes in strict correspondence with which the *concentration of the nervous centres* proceeds. So remarkable is this double and inverse order of variations, that the consideration of it alone ought long ago to have taught biologists that animal life is not a substance or an entity that can be measured out in terms of less or more, or qualified by such phrases as "sthenic and asthenic," but is in fact an equilibrium of matter and of forces which is peculiar in the case of each individual. Of this truth Dr. Gull gives a passing glimpse in his able address, which we notice elsewhere; but he is in error when he says that no English word has been invented for this equilibrium of forces, which really constitutes the life of each animal. Long ago, Coleridge[*] (in some degree stimulated by the speculations of Schelling) had sketched the outline of the doctrine, and invented a perfectly appropriate word to express the fact. And the term "Individuation," which he proposed, has since that time been prominently advocated by two English writers independently of each other.

Most useful, again, are Professor Rolleston's illustrations of the value of abstract research and thought in connexion with some of the commonest incidents of every-day practice. No lesson more urgently requires to be impressed on the mind of the average British medical man than this: that without deep thought and study on abstract questions, the resources even of the most homely and so-called "practical" medicine could not be supplied or kept up, and that it is a base and suicidal ingratitude which sneers at those whose labors may (to a limited vision) seem "curious and *dilettante*, otiose, or even disgusting," but "may turn out ultimately to be essential elements in problems the solution of which promote directly and greatly the interests of man, and the glory of Him to whom nothing is common or unclean." We wish our space allowed us to comment on Professor Rolleston's illustrations of this truth, and on others which we could adduce. And we should especially have liked to say some words on the orator's able defence of the principle—in some sense the opposite of the Newtonian "Law of Parsimony"—which bids us to "be most careful that we omit none of the circumstances which can by any possibility be of the essence" of any case which we are investigating,—a principle which it is no doubt true that certain schools of philosophy tend systematically to neglect.

On a future occasion we shall take an opportunity to analyse the very important address of Professor Haughton, for which we have at present no space.

## DR. WILLIAMS ON THE TREATMENT OF PHTHISIS.

WE attach great value to the papers published in this journal by Dr. C. J. B. Williams and his son, Dr. Charles Theodore Williams, "On the Nature and Treatment of Pulmonary Consumption as Exemplified in Private Practice." Dr. Williams speaks on this subject with a unique authority. He has been studying and treating chest diseases for forty years. He is himself free to confess that in the first part of this period the duty of the physician in regard to pulmonary phthisis was unsatisfactory enough. Medical duty consisted in watching the slow "gradations of decay," and making little other contribution to the "distressing tragedy" of a case of phthisis than a prognosis of two years' duration, and such treatment has tended to the alleviation of its mere symptoms. Dr. Williams has outlived this period. He has lived into another and continues an authority in it; and if we wanted an illustration of the triumphs of scientific medicine we should scarcely prefer another to that which Dr. Williams has supplied in the case of phthisis. According to very reasonable calculations, the average duration of the life of phthisical patients has been extended from two years—the limit assigned by Laennec and Louis—to eight years. This calculation does not include cases occurring in Dr. William's experience in the last ten years. A comforting thought is, that if phthisis can be extended from two to eight years, there is good ground for hope that it may be indefinitely extended. Moreover, this is a true medical triumph. It is the result of the discovery of a real remedy, if not a specific one, and of a clearer conception of the true pathology of the disease. The medical world has been almost startled of late by the boldness of doctrine on this subject. Villemin's experiments, showing the possibility of producing phthisis in some animals by the inoculation of tubercle; Dr. Budd's suggestion in our columns that consumption is a zymotic disease; Dr. Buchanan's investigations, and of those of Bowditch in America, tending to show that the drying of soil, which has in most cases accompanied the laying of main sewers in improved towns, has been attended with a very marked diminution of phthisis; the growing agreement of pathologists as to the nature of tubercle, and its relation to commoner forms of exudation; and the very important qualification necessitated in the doctrine of the inoculability of tubercle by the experiments of our pathologists, especially Dr. Andrew Clark, Dr. Wilson Fox, and Dr. Burdon-Sanderson,—all these things tend to raise our hope that we are on the border of much more accurate knowledge of this subject than has obtained hitherto. But the pathological and etiological departments of this subject are still full of profound difficulties, and we shall for some time to come have to act upon the practical views of physicians rather than upon the theoretical views of pathologists. Let us, then, endeavor in a short space to state the lessons of Dr. William's experience on this subject.

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[*] "Theory of Life."

The first lesson is a moral one—that we should no longer look upon a case of phthisis as hopeless. Rather, we should regard it as eminently capable of judicious or injudicious treatment. Some of the histories of cases detailed by Dr. Williams are very graphic illustrations of the real nature of medical duty, as well as of the encouragement there is for the persevering treatment of even bad cases. They show an ever-recurring fight with the ugliest symptoms. Take one case by way of a specimen. A clergyman, aged thirty-four, first consulted Dr. Williams in 1848. He had had hæmoptysis fourteen months before. At this time he had cold and cough, and the following physical signs: dulness and tubular expiration in upper right chest, bronchophony and mucous rhonchus below the right clavicle. A few weeks after this he had a further attack of hæmoptysis in church. What is the chequered history of this (as would then be thought by Dr. Williams) most unpromising group of symptoms? "In 1849, well till last few weeks, when he had temporary cough; 1852, well and doing double duty till a year ago, when he caught severe cold and had hæmoptysis twice at short intervals; 1854, went to Madeira and passed a second winter with benefit; 1856, married; 1868, reported quite well, with a family of six children. Since last report has had two or three attacks of hæmoptysis, and some years ago severe bronchitis and congestion of the lungs. At present he is in excellent health, doing parish duty, which he has not omitted for more than two months at a time for the last twelve years. Nearly twenty-one years have elapsed since the first symptoms."

The study of the facts of individual cases of this kind seems to us calculated to make a deeper impression on the mind than statistical statements. And yet some of the statistical facts are very encouraging. Thus the 500 cases tabulated for these papers included no fewer than 287 of ten years' standing and upwards. Of the 500, 116 are dead, and 384 were alive at the last report. In more than half of them the lungs improved. In one-sixth they remained stationary. Fifty-six cases were of twenty years' standing, and constituted nearly one-seventh of the whole number. These facts, and the slow progress of the disease in the majority of cases under present modes of treatment, make hopefulness and painstaking on the part of the practitioner a duty.

It is not our design to go minutely into the views of Dr. Williams. We take it for granted that our readers have ascertained these for themselves. His views of the pathology of the disease are not only such as he has long held, but they accord substantially with the recent light of pathology on this intricate subject. He regards tubercle as related to pus, lymph, and other forms of inflammatory exudation: "The whole clinical and pathological history of grey tubercle seems to separate it widely from cancer and other growths, and to approximate it to pus, lymph, and other exudation materials, as a modification of the ordinary process of textural nutrition." Tubercle may either be deposited insidiously, or with symptoms of an acute or inflammatory kind. Of the 500 cases selected for analysis by Dr. Williams, 66 are described to have taken their origin in inflammation of the lung or pleura, and 84 in severe cold, which may be supposed to have included some form or degree of bronchial irritation. The hereditary element was very marked in Dr. Williams's cases, being made out in 45·2 per cent.

The treatment pursued by Dr. Williams arises naturally out of his views of the disease. Where any decided inflammatory symptoms exist, he endeavors to subdue them by salines, blisters, poultices, and like measures. But this discipline is only preliminary to the treatment that is to correct the error of textural nutrition in which the disease essentially consists. All remedies are secondary to cod-liver oil. But the mineral acids and bitters are constantly prescribed. There is a striking gradation in the success of the treatment to be traced in the summary given in Dr. Williams's last paper. The first improvement (from 1838 to 1848) was in connexion with the habitual use of mild alterative tonics, especially iodide of potassium, with sarsaparilla and other vegetable tonics. These were at first given with alkalies, and in other chemically doubtful combinations. The lowering effect of alkalies led to the substitution of the mineral acids. In the latter half of this period cod-liver oil came into use, and its usefulness and efficiency have gone on increasing with improved preparation and methods of administration, in connexion with various tonics, and certain rules of diet and regimen.

The great success of Dr. Williams's treatment cannot be dissociated from the social position of his patients and their ability to protect themselves from cold and other hardships by change of climate and various comforts. But even in hospital and dispensary practice great results may be obtained from such measures as he recommends. And we are glad to have been the medium of placing on record the particulars of his long practice. It must be a great pleasure to him to be able to regard tubercular disease so much more hopefully at the present time than he did forty years ago. Let the enemies of medicine say what they will, it is a progressive and useful science.

## CHEMICAL EXPLANATION OF THE ELECTRICAL CURRENTS IN MUSCLES.

It is well known that, under ordinary conditions, a current of electricity passes from the natural or artificial longitudinal surface of a muscle to its natural or artificial transverse section. Various causes have been assigned for this by Dubois-Reymond, Dr. Radcliffe, and others. In a paper published towards the close of last year M. L. Hermann breaks new ground, and maintains that the phenomena observed have a chemical origin. Previous researches had already led him to the conviction that in the act of muscular contraction, as well as in the peculiar condition of post-mortem rigidity, changes identical in their nature, resulting in the disintegration or splitting-up of some complex substance previously present in the muscle into lactic or carbonic acid and myosin, take place. Precisely similar changes, only far more gradual, he believes, occur throughout life, even when muscle is in the state of so-called rest; but their activity is immediately accelerated by the application of any stimulus to the muscle; and if the disintegration be continuous, without coetaneous and corresponding synthetic processes tending to the restitution of the muscular substance, tetanus or rigor mortis must ensue. In the act of making a transverse section of a muscle a violent mechanical stimulus is applied, which causes its most superficial layer to be destroyed and to pass into a tetanic condition. By the same act the ordinarily slow processes of disintegration taking place during life are materially accelerated in a number of layers of the muscle lying successively more and more distinct from the surface of the section. But it is highly probable that the disintegrating processes, after attaining a certain degree of intensity in any single layer, progresses afterwards more and more slowly till complete tetanus or stiffening occurs. Hence, after the lapse of a sort time, the layer undergoing most active change will not be the exposed surface of the section, but some layer situated more or less deeply. On theoretical grounds, M. Hermann thinks it probable that those parts of the muscle which are undergoing active disintegration behave themselves negatively to those which are undergoing the same changes more slowly; and he furnishes various proofs that, by accelerating the chemical changes, any chosen part of a muscle may be made strongly electro-negative tc the rest. One mode by which the acceleration may be induced is the exposure of a portion of a muscle to a temperature of 100°F., the remainder being kept at 60°F. The former will invariably be found to be electro-negative to the latter. M. Hermann shows also that in a fermenting fluid an electrical current can be made evident, passing from the substance undergoing fermentation towards the former. This he has ingeniously made apparent by constructing one of the pôles of a galvanometer of a piece of cheese and immersing it in a solution of milk-sugar, in which the other pole, made of an indifferent substance, was also plunged. In this instance it will be observed decomposition of a complex substance (milk-sugar) takes place under the operation of a ferment (cheese); one of the results being an acid (lactic acid)—conditions which are essentially analogous to those occurring in the splitting-up of muscular and nervous tissue, that are constantly taking place both in life and after death. Moreover, it may be shown that of two layers of muscular substance in juxta-position to one another, that one which is undergoing disintegration more rapidly than the other, and which therefore acts upon the latter as a ferment, will be electro-negative to such more slowly decomposing layer, and, it is important to observe, more energetically so in proportion to the activity of the changes taking place in it. Hence it follows that the surface of the transverse section of a muscle, which, owing to the mechanical irritation to which it has been subjected, and to the action of the oxygen of the air, is undergoing disintegration with the maximum of rapidity, will necessarily be negative to every other part of the muscle, but especially to the natural longitudinal section that is well protected by its investments of perimysium and sarcolemma. This mode of explaining the phenomena observed seems to have an important bearing on the theory of electrotonus, to which we intend to refer on a future occasion.

# Medical Annotations.

"Ne quid nimis."

### BROMIDE OF POTASSIUM.

The results of certain experimental researches into the action and therapeutic value of bromide of potassium have just been published in the July number of the *American Journal of Medical Science*, by Dr. Bill, the Director of the United States Army Laboratory at Philadelphia. Dr. Bill first records his personal clinical knowledge of the drug. He found the bromide diminish sensibility—but by acting upon the periphery of nerves rather than the central nervous organs,—as exemplified in its allaying the irritability of the pharynx, the urethra, the conjunctiva, &c., in diseased states. The experimental exhibition of the drug increased the quantity of urine, the degree of acidity, the amount of coloring matter, and the chlorides notably. The urea was not affected, and the phosphoric acid varied, being, however, augmented by small doses of the bromide. Uric acid was increased by bromide of potassium. The carbonic acid exhaled from the lungs was decreased in a marked manner at first, but for several days succeeding its use the amount of the gas exhaled rose above the normal quantity. Lastly, the fæces were diminished in weight. Dr. Bill argues that it is the *salt*, and not the bromide, that produces the results under discussion, and in this way: the bromide of potassium exchanges with the chloride of sodium in the body, as regards the bromine and chlorine, so that chloride of potassium passes off in the urine, and bromide of sodium remains behind to take the place of the ordinary chloride of sodium in all nutritive processes. The two bromides of sodium and potassium are said to act differently when the former is given, the fæces are not lessened, and thirst is felt, which is not the case with the potash salt. Bromide of sodium, then, is, according to Dr. Bill, the physiological substitute for chloride of sodium. That the bromide of potassium does not act as a hypnotic in limited and small doses is believed to be shown by the fact that there is no evidence in the experiments of a diminution of nerve force; that the effects of the drug do not increase with the dose; that there is no diminution in the total carbonic acid excreted; after the withdrawal of the drug the carbonic acid augments, showing that only its exit has been interfered with. Dr. Bill allows that his researches show that a diminution of function of the mucous surfaces of the body does follow the use of the bromide; and it is by deadening the sensibility of irritated peripheries—by which the sensory ganglia are made less cognisant of local evil, so that sleep is *allowed*, not compelled, as in morphia—that the drug acts. When larger doses are given, the carbonic acid accumulates in large quantity in the blood, and the action on the ganglia is more marked, and these two conditions, but especially the former, induce a sleep which is similar to that which arises from a crowded room, or redundant food. According to Dr. Bill, then, bromide of potassium, in its legitimate action, acts as an anæsthetic of the nerves of the mucous membranes, and a depressor of their action. The hypnotic effects are secondary. The use of the drug in epilepsy is explained by its action on excentric or peripheral causes of the seizures in that disease.

### CHOLERA AND YELLOW FEVER IN THE UNITED STATES ARMY.

IN THE LANCET for 1867 attention was directed to an official report on the prevalence of epidemic cholera in the United States Army in 1866. A recent report, now lying before us, continues the history of the cholera epidemic during 1867, and gives also an account of the extent to which yellow fever spread among the United States troops in that year. The report on the prevalence of cholera in 1866 was particularly instructive on account of the clear manner in which it was shown that the disease was principally disseminated from two or three infected points to the different stations by the movements of the troops. The carriage of the malady was tracked from point to point along the routes of bodies of men marching from stations where the epidemic had previously prevailed, or was prevailing at the time when the routes were taken. The further history of the epidemic in 1867 brings out prominently a like series of facts, "and especially confirms the opinions proved (in the previous report) with regard to the danger of distributing recruits or other bodies of troops from an infected point to other garrisons." An additional lesson gained by the experience of 1867 is thus stated: "The possibility of cholera reappearing in the following year at places visited by it during an epidemic, if the most stringent hygienic precautions are not adopted."

The report on yellow fever is of much interest from the illustrations it affords of the portability of the disease. The origin of the outbreak in the United States in 1867 is assigned to two foreign sources, from which the disease is believed, on good grounds, to have been imported. These sources were Vera Cruz, Mexico, and Havana, Cuba. From Mexico the malady "was brought to Indianola, and thence to other points of Texas. At all other points it seems to have been brought directly or indirectly from Havana; and it is worthy of remark that the cases here indicated as of Mexican origin were more fatal than those of Cuban origin, two out of every five cases of the former dying, while the mortality of the latter was but two out of seven. The ratio of deaths was 400 per 1000 cases for the first of these groups, 284 per 1000 for the second."

The data upon which the inferences and statements of the report are founded do not admit of being given with brevity. They must be consulted in detail in order to form a just appreciation of the importance of the report now before us and of that for 1866, as contributions to our knowledge of the etiology of cholera and yellow fever.

### PROFESSOR RICHET'S EULOGIUM ON JOBERT DE LAMBALLE.

THE annual public sitting of the Faculty of Medicine of Paris took place on the 14th, August, and, strange to say, was unattended by any manifestation on the part of the students; their conduct was indeed remarkably quiet and orderly as compared with preceding occasions. At 1 P.M., the doors of the School of Medicine were thrown open to those visitors only who could produce a printed invitation from the dean. The main feature of the proceedings was the delivery of Professor Richet's eulogium on Jobert de Lamballe. The Professor's discourse contained many valuable points, and evinced sound judgment, nice discriminating power, and elevated sentiments. He drew a faithful picture of Jobert's tormented and chequered existence. The contrasts which marked his life were described in graphic terms. When Jobert came into the world, his parents were in such miserable circumstances that his mother gave birth to him on a bundle of hay, which scarcely protected her from the dampness of the ground. Yet the boy rose in due time to great surgical eminence, and became the possessor of high scientific and worldly honors and considerable wealth. Next it was told how young Jobert was brought up, out of charity, by a kind-hearted curate, who sent him to Paris in order to go through his medical studies; and how he there commenced a weary life of toil and misery. Jobert lodged in the Hôpital St. Louis, where, but for the kindness of the sisters, he had almost starved. Besides this, he had to contend with his many physical imperfections. He was of a most timorous disposition, and expressed himself with the greatest difficulty. Notwithstanding these various obstacles, he made his way through the different competitive examinations by dint of energy and perseverance. M. Richet took a most favorable view of Jobert's abilities as a surgeon, and of his scientific labors and writings. His researches on union by first intention, on gunshot wounds, on the juxtaposition of tissues of like texture, on the cauterisation of the os uteri, and on vesico-vaginal fistulæ, were spoken of as performances which would ensure Jobert a goodly rank amongst the distinguished and useful surgical investigators of the age. Jobert's real value as an operative surgeon was alluded to with just praise. He was possessed of all the qualities which form a safe, daring, and skilful operator. He was a thorough master of anatomy, had a dexterous hand, and showed great self-possession, promptitude, and ingenuity in the emergencies of his practice. But he was as bad a professor as he was a good surgeon. In estimating Jobert's private character, M. Richet said that "the man was worth more than his reputation." M. Richet ascribes the strange oddities and inconceivable transitions of humor which made Jobert so remarkable, previous to the final wreck of his intellect, to the constant efforts and tension of his mind while dealing with his own imperfections and with the difficulties of his life. Jobert was constantly at war with himself or with others. The sad misfortune which befell the celebrated surgeon, depriving him of the joys and solace of a family, also tended to develop this disposition. Yet beneath the roughness of his surface there were many real and good qualities: staunch fidelity to friends, and gushes of kindness and charity. Jobert had been accused of being selfish, and of having charged enormous fees for his surgical services. M. Richet denied the first of these accusations; and, in alluding to the second, he laughingly said that even in this respect Jobert did not wish to be behindhand with his rivals.

### ABSINTHE SUISSE.

We have analysed a sample of what we believe to have been the veritable Absinthe Suisse, in order to determine whether the analysis would throw any light upon the extraordinary effects produced by this compound on the human frame. These effects, as is well known, are high and even delicious excitements, followed by proportionate subsequent depression, with, ultimately, early decadence of the nervous and vital powers. The results of the analysis were as follows:—

Specific gravity, 890·2.

| | Per cent. | Per 1000. |
|---|---|---|
| Alcohol, absolute | 65·528 | 655·28 |
| Green essential oil | ·202 | 2·02 |
| Sugar, Gum, &c. | ·354 | 3·54 |
| Mineral matter | ·056 | ·56 |

Two particulars of the analysis especially challenge observation and remark, and we believe that taken together, they go far to explain the highly injurious and even deleterious action of absinthe upon the system. First, we observe that alcohol is present in very large amount—as large, in fact, as in the very strongest brandy. Second we notice that it contains no less than 2 per 1000 grs. of essential oil. Now a great variety of essential oils exert the most marked effects on the system—take for example, those of tea and coffee; and amongst those which exercise these effects we must certainly include the oil of absinthe. Now either the alcohol or the essential oil alone is capable of affecting powerfully the human organism, but when they are consumed together the body is subjected to the double power of two most potent agents, acting mainly on the nervous system. It is therefore far from surprising that it should give way under repeated doses of this but too seductive beverage. Of the injurious operation of an essential oil on the economy we have another example in oil of grain, or fusel oil.

The absinthe was specially tested for metals, such as copper and iron, as, had they been present in considerable amount, they also, in combination with essential oil and alcohol, would have explained in some degree the deleterious properties of extrait d'absinthe; traces of iron only, however, were to be found.

### BULL-BAITING.

A great outcry was raised not long ago about the extreme cruelty of vivisection as practised on the Continent; but there is, perhaps, no more cruel and cowardly kind of spectacle than a bull-fight. We were once present at one in Spain. The horses employed were of the most miserable description—jaded, half-starved used-up animals, without the requisite strength or courage to withstand or escape the encounter of a bull. Some of these poor brutes, after being gored by a bull, fell down from exhaustion, with blood and intestines issuing through the wounds in their flanks made by the bull's horns. They were beaten and spurred until they rose, and the protruding viscera were pushed back and confined by a wisp of hay or straw; and, when they could no longer respond to blows, their bodies were dragged off the scene. The bull is played with until he is nearly worn out by fatigue; then barbed garlands are adroitly inserted into his neck, and if he fails to charge with the requisite courage, the stimulus of fireworks is added. As a whole, we never witnessed more disgusting or wanton cruelty; and what shocked us as much as anything was the mad delight which was manifested by the spectators, composed of men, women, and children. The first rush of the bull into the arena and his consternation at the shouting and loud knocking of sticks, is, perhaps, rather a fine sight and there is skill displayed in teazing and killing him; but the spectacle, in other respects, is simply sickening. We have been accustomed to regard the horse as a good servant, and a sort of companion—as an animal high up in the scale, with a corresponding nervous organisation and sensitiveness to pain and injury. We regret, therefore, that any attempt should be made to introduce into France the cruelties and degrading effects of a Spanish bull-fight; and we sincerely hope that it may never become a pastime among a civilised people like the French. We look to such noble societies as that over which Lord Harrowby presides to prevent the occurrence of such amusements among ourselves as that witnessed at Havre.

### THE WEATHER AND MOSQUITOES.

THE present is said to have been so exceptional a season that we have had nothing like it during the last fifty years. It is likewise asserted that it is, relatively speaking, as cool at Calcutta as it is hot here. A paragraph has been going the rounds of the press to the effect that we are threatened with one of the small curses of hot places—viz., mosquitoes, which are said to have invaded Woolwich in thousands, having been imported in vessels from Bermuda. Their presence has been cleverly ascribed, we understand, by some of the officers to the effect of amalgamation of the British and Indian services of artillery! The insects we saw appeared to us to be gnats.

*Apropos* of mosquitoes we may say that their bites, besides being a source of annoyance, such as those who have travelled in the East can duly estimate, sometimes cause considerable irritation and local inflammation of the skin, as well as a predisposition to disease from the debility caused by want of sleep. People differ a good deal as to the amount of irritation they suffer in this way, but in almost all there is a tendency to obtain immunity after a time. It is a curious fact that the susceptibility of the whole, or different parts, of the system, to the action of poisons and irritants appears to be limited, and the bites of mosquitoes, the action of vesicants, and the power of vaccine and other animal poisons, cannot be made to perpetuate their effects on one and the same system. Various local remedies have been used for the stings of insects, such as a solution of soda or ammonia, and of late an alcoholic solution of the *pyrethrum roseum* has been much vaunted as an effectual method of keeping these animals at a respectful distance. There is, however, nothing better than mosquito netting, and we saw not long ago an ingenious American contrivance by which a net of this kind was opened like an umbrella by means of a spring. It packs closely, and ought to prove a boon to sick people travelling or residing in hot places.

### SHOCKING CRUELTY ON THE HIGH SEAS.

THE adjective "diabolical" is too light a term for some of the disgusting barbarities that still happen in this nineteenth century. The captain (Scovill) and second mate (Carrol) of a ship —we blush to say a British ship—the *Lydia Thompson*, were sentenced last week, at the Liverpool assizes, the first to two years,’ the second to one year's imprisonment, for brutal ill-usage of four colored seamen in the course of a voyage from Jamaica to Liverpool. The mate, Ansell Larkin, only escaped a similar condemnation by being previously sentenced to penal servitude for life for the manslaughter of a colored seamen, Donald M'Donald. M'Donald was ill, and could not work; whereupon Larkin struck him with an iron belaying-pin. His body was fearfully disfigured, and he died in three or four days. A more ingeniously disgusting, if less fatal, cruelty was practised on the other negro youths. They were actually tied together by the penis, and whilst so tied were made to dance about by having sail needles thrust up the rectum! The lads bitterly described the pain of these proceedings and the sufferings which followed, especially the inability to micturate. What is to be said of the significance of such a group of chief officers being found on board a British ship? Had the barbarity been the conception of one man, the case would have been a little less shocking; but three such officers on board of one ship is a frightful discredit to our merchant navy. The details were so shocking as not to admit of publication through the ordinary channels. But the above particulars were actually established in the course of the trial.

### THE "PARASITIC" ORIGIN OF DISEASES.

DR. RICHARDSON, of Cayuga County, U.S., has been drinking water which, standing upon some fragments of beef for a couple of days at a time, has contained numerous bacteridia, and, subsequently examining microscopically his blood at stated intervals, he finds at the end of half an hour that between the rows of blood-corpuscles, under a high power (1–25) are apparently sperical molecules in rapid and erratic motion, but so minute as readily to escape detection except under the closest scrutiny. At subsequent examinations in an hour and a half these had become like bacteria. Those so observed were 1–12000 inch in length, 1–25000 inch in breadth, and constricted in the middle. One was composed of four or five joints. Dr. Richardson gives the result of his experiments in the *American Journal of Medical Science*, and concludes thus:—

"Although I am well aware that the plans adopted do not preclude the possibility of error through the introduction of living organisms into the blood after it has left the walls of its vessels, yet I think most candid inquirers will admit that the fact that an increased number of moving particles were visible after an increased dose of vibriones (contained in the draught above mentioned *whose swarming population exceeded more than twenty times the sum total of every man, woman and child who walks upon our earth*), and at the same time *in spite* of increased precautions which the most stubborn sceptic must acknowledge would have a tendency to diminish the chances of deception, goes far to prove that multitudes, probably millions, of infusoria, thus entering the stomach, find their way into the blood in a few hours, and, retaining their independent vitality, circulate with that vital fluid through the minutest ramifications of the arteries, and penetrate to every portion of the human system. And if this be true, how strong becomes the presumption that there are other plants more deleterious in their growth or more poisonous in their nature, which also thrive under certain circumstances within the blood, and each constitute the essence, the real *contagium*, of some so-called zymotic disease, as, for example, diphtheria and scarlet fever, small-pox and measles, as declared long ago by Professor Salisbury, of Cleveland, and recently by Professor Hallier, of Jena."

The "parasitic" origin of diseases is verily assuming gigantic proportions!

### PUNISHMENT FOR ADULTERATION OF FOOD IN LONDON IN THE MIDDLE AGES.

In the "Memorials in London" we find that in 1311, a baker was arrested for selling putrid bread and in 1316 another baker was sentenced to be drawn on a hurdle through the principal streets of the city for selling "light bread deficient in weight;" and in the same year the punishment of the pillory was inflicted upon a man and woman for selling bread of "rotten materials," and deficient in weight. In 1319 a certain William Spelyng was adjudged to be put upon the pillory, and two putrid beef carcases to be burnt under him for exposing the said carcases for sale; and in 1320 we find two cases similar to the preceding. In 1348 and 1353 the punishment of the pillory was inflicted for selling carrion,—in one case the meat being burnt under the offender. In 1351 proclamations were issued as to the sale of fish. In 1364, a seller of unsound wine was punished by being made to drink it. In the following year the punishment of the pillory was inflicted upon a poulterer for selling putrid pigeons. In 1372, a woman was punished for selling putrid soles, the fish was ordered to be burnt, and the cause of her punishment proclaimed; and we find another case of punishment by the pillory in 1361, for exposing putrid pigeons for sale. 1390, twelve barrels of eels were ordered to be taken out of the city, and buried in some place underground, lest the air might become infected through the stench arising thereform. An important proclamation against the adulteration and mixing of wines was issued by Henry the Fifth in 1419, and the punishment of the pillory was ordered for all who sold false wines.

If a few examples similar to the above kind were made at the present day they would be of service to the community.

### THE WOUNDS PRODUCED BY THE CHASSEPOT CONICAL BULLET.

It appears, from experiments recently made at the Camp of Lyons, with the view of determining the character of the wounds produced by these projectiles, that the entrance is relatively very insignificant as compared with that of the exit wound, which is said to be as large as a person's two fists. This is accounted for by the rotatory motion of the ball on its axis, and the gradual increase it makes in the size of its circles. In one of the papers we read that these experiments were made on the body of a living but wounded horse. The *Pall Mall Gazette*, as we hope more accurately, mentions the bodies of dead horses as having been used. The one end and aim of war is destruction of human life, and it would have been an unjustifiable inhumanity to have inflicted injuries of this nature on living animals. Vivisections and experimental observations should, to say the least, be restricted as much as possible conducted with every precaution to prevent pain, and only undertaken with a conscientious conviction of their necessity. But their ultimate aim is to relieve suffering, and this certainly cannot be said of the experiments to which we have referred.

### DIPSOMANIACS.

We know not whether our Scotch friends are more given to indulgence in spirituous liquors than are the English, but they have adopted a sensible and humane method of treating that form of disease—for it amounts to a disease,—an incontrollable love of alcoholic drinks. We have on former occasions earnestly called attention to this class of cases, in the interests of the unfortunate drunkard and his family; but the liberty of the subject has proved a bugbear in the way of all legislation. People are beginning to adopt more healthy notions however, and the drunkard is not allowed to exercise his liberty at the expense of other people's health and happiness quite so much as heretofore. We learn that the Lunacy Board of Scotland has adopted some action in the matter. In a report of a former year an opinion was expressed that persons unable to resist the tendency to excessive drinking should be allowed to place themselves under control and treatment without authority from the sheriff. By the Lunacy Amendment Act, 1866, asylums are authorised to receive for care and treatment any person who expresses in writing to the Commissioners in Lunacy his wish to become a voluntary patient, and obtains their consent; and that this provision was taken advantage of in 1867 in Scotland by 17 persons: 14 were admitted into public and 3 into private asylums. We would go a little further, and make it permissible to place such persons under medical restraint where it could be shown by clear and unmistakable evidence that a drunkard exercised no control over his habits, but was ruining himself in health, and plunging his wife and family into destitution and misery.

### A FRENCH MEDICAL SENATOR.

Among the promotions of August 15th (a date habitually chosen by the Emperor of the French for distributing his favors) we notice the name of M. Nélaton as having been raised to the high dignity of senator. This is the only example of a medical man *in practice* being promoted to a seat in the Upper French House, whether Imperial Senate or House of Peers. Until now it had been foolishly considered that the dignity of a peer or a senator was scarcely compatible with the nature and busy occupations of medical practice. Under Louis Philippe the peerage was offered to Dr. Double, the King's physician, on condition that he would renounce practising. Dr. Double's private circumstances were such that he might easily, if he would, have accepted the sacrifice in favor of the honor. But he refused through a feeling of pride, and a most laudable concern for the dignity of his profession. We are glad that the absurd prejudice has at length been destroyed, and that such an event has taken place in connexion with the celebrated surgeon we have named.

### THE ADULTERATION OF BREAD.

The chief constable of Dorset has set a very good example in the issuing of the following notification pretty extensively in his district in regard to the abominable practice of adulterating bread:

"*Adulterating Bread.*—Any baker or other person using any mixture or ingredient whatever in making bread, except flour or meal of wheat, barley, rye, oats, buckwheat, Indian corn, peas, beans, rice, or potatoes, with common salt, pure water, eggs, milk, barm, leaven, potato or other yeast, is liable to a penalty of £10.

"*Bread made of mixed meal or flour as above must be marked.* All bakers or other persons selling or exposing for sale bread made wholly or partially of peas, beans, or potatoes (except potato yeast), or any sort of corn or grain other than wheat, shall mark such bread with a large roman letter M; and failing to do so shall be liable, on conviction, to a penalty of 10*s.* to every pound of bread thus sold."

### A NEW TEST FOR BLOOD-STAINS.

We were informed recently that a medical practitioner at Geelong, Australia, had discovered a new method of testing for blood, which was of a very delicate character. It consists in the application of an ozonised ether and tincture of guaiacum. As we have personally tried the experiment with some tests supplied to us by Messrs. Savory and Moore, and with success, the information may prove interesting to our readers. It appears to be very delicate, and, consequently requires that the amount of blood should be small, and in a very thin layer—the merest stain,—otherwise the blue color which is developed becomes so concealed by the coloring-matter of the blood as to be inappreciable, except around the edge of the blood-stain. By applying, however, the above agents separately to blood-stains on a handkerchief, we did not ourselves fail to produce a characteristic blue color.

### THE LATE SIR BENJAMIN BRODIE.

In a day's outing lately, through parts of Surrey, we came on the sequestered and very pleasant village of Betchworth; and on going into the church—a very good specimen of the old English parish church—we found that an alabaster tablet had been erected to the memory of the late Sir Benj. Brodie. The tablet is of a very chaste design, and below an excellent likeness in marble of the late distinguished surgeon is the following inscription:—

In Memory of
Sir Benjamin Collins Brodie, Bart.,
Sergeant-Surgeon to the Queen,
President of the Royal Society,
Born 1783—Died 1862.
By his surgical skill he alleviated
the sufferings of his own generation
and conferred lasting benefits on mankind.

### THE CATTLE EPIDEMIC IN AMERICA.

The nature of the epidemic amongst the cattle in America which come from Texas, has given rise to much discussion, and the most opposite opinions have been expressed upon the point. Mr. Gangee, who is in America, has pronounced the opinion that it is spread by the excreta of cattle which have fed on a particular plant, which does not affect the original eater of it. The drovers ascribe the disease to the attack of an insect called the carapato, which burrows in large numbers in the skin. A third hypothesis is that, in the transit of the beasts, fever has been generated. The disease, whatever it is, kills about half of those attacked by it. According to the latest accounts, it has diminished in New York.

## Analytical Records.

### BONTHRON'S DIABETIC BISCUITS.

It was pointed out long since by Dr. Hassall that even the most carefully prepared bran biscuits abound in starch, and that they are most unsuitable for the use of the great majority of patients laboring under diabetes. Dr. Hassall has found them to contain from 40 to 50 per cent. of starch, and that it is impossible to free the bran from the starchy element by any number of washings and pressings. As he has shown, the only really effectual method of removing the starch is by the action of the diastase derived from a solution of malt. This converts the insoluble farinaceous matter into the soluble glucose, which is easily washed out of the bran by means of water. The material thus obtained is absolutely free from the smallest trace of starch or other matter convertible into glucose. Unfortunately, however, it binds only with great difficulty into a biscuit, and requires for this purpose to be very carefully treated and prepared.

In proof of the large quantity of starch contained in the bran biscuits specially prepared for the use of the diabetic, it is only necessary to moisten a small fragment of one with tincture of iodine, when it immediately turns of a bluish-black color.

It is obvious, on examination, that the diabetic biscuit of Mr. Bonthron is a gluten and not a bran biscuit, and it is certainly the most palateable gluten biscuit we have ever tasted; it is remarkably light, and very nutritious. But, from the iodine test, it is apparent that it contains a large per-centage of starchy matter—so much, indeed, as to render it unsuitable for many cases of diabetes. Touched with a solution of iodine, the biscuit becomes of a dense, bluish, thick color.

### ARNETT'S QUININE ALE.

The combination of a tonic with a stimulent is certainly a favorite one, and there is no doubt that in some cases it is useful and beneficial. We have an example of this union in the case of the far-famed bitter beer, in which the alcohol of the malt is associated with the bitter principle of the hop; a second example is afforded in the case of quinine wine. But it has occurred to Messrs. Arnett and Co. that the bitter alkaloid of bark, quinine, might be added with advantage to a malt beverage; and hence we have Arnett's Quinine Ale. We find that, as stated, one imperial pint of the ale contains a grain of quinine.

### SCARLETT AND LYNN'S BEEF-TEA.

We have subjected a sample of this preparation to examination, and append the results of the analysis; and, for the sake of comparison, we give also analyses of Liebig's extract and of ordinary clear beef-tea.

*Scarlett and Lynn's Beef-tea.*

| | | |
|---|---|---|
| Water ... ... ... ... ... | 54·14 | per cent. |
| Organic alcoholic extractive matter | 5·91 | " |
| Organic extractive insoluble in alcohol | 35·95 | " |
| Mineral matter ... ... ... | 4·00 | " |
| Albumen ... ... ... | A small quantity. | |
| Fat ... ... ... ... | A very small quantity. | |

Nitrogen, 6·99 grs., equal to 38·26 grs. per cent. of nitrogenous matter.

*Liebig's Extract.*

| | | |
|---|---|---|
| Water ... ... ... ... ... | 18·20 | per cent. |
| Organic alcoholic extractive matter | 37·60 | " |
| Matter insoluble in alcohol ... | 22·95 | " |
| Ash ... ... ... ... ... | 21·25 | " |

Nitrogen, 8·42, equal to 54·32 albuminous.

*Clear Beef-tea.*

(Composition of one pint.)

| | | | | |
|---|---|---|---|---|
| Gelatine ... ... ... | 57·5, | equal to | 35·5 | per cent. |
| Organic alcoholic ext'tive | 63·8 | " | 39·0 | " |
| Ash ... ... ... | 41·0 | " | 25·0 | " |
| | 162·3 | | | |

It will be observed that the proportion of matter soluble in alcohol is small in Scarlett and Lynn's beef-tea as compared with Liebig's extract; that the beef-tea of these makers contains a moderate amount of gelatine, which is nearly absent in the extract, but which abounds in the ordinary but well made clear beef-tea. The beef-tea, however, of Messrs. Scarlett and Lynn we found to be in a good state of preparation and of pleasant flavor, and it will doubtless prove of service in all cases in which ordinary beef-tea is required. It admits of being prepared for use in the course of a very few minutes.

### CHOCOLAT DE LA COMPAGNIE COLONIALE.

The superiority of the chocolates of French manufacture over most of the English preparations was a few years since very great. This arose mainly from the very large quantity of starch, sugar, and even mineral coloring, introduced by some English manufacturers into their articles. The difference, although not nearly so great as formerly, is still considerable, and preference has yet often to be given to the foreign manufacture. We have recently received and examined a variety of the chocolates of the Compagnie Coloniale of Paris, and we found them to consist solely of cocoa of superior quality, and sugar. Altogether, it was evident that much care had been bestowed on their preparation and that they were of very superior quality and purity.

### THE PEPSINE BISCUITS OF MESSRS. BEWLEY, HAMILTON, AND CO.

Many persons object to take pepsine in the forms in which it is usually prescribed—namely, in the liquid state in combination with wine, and in the solid form of pill or powder. In order to obviate the objection thus entertained, it has occurred to Messrs. Bewley to combine the pepsine with the constitutes of an ordinary biscuit. Each biscuit is stated to contain five grains of pepsine, and in flavor is not distinguishable from any other pleasant and well-made similar article. It is well known that pepsine is an exceedingly delicate substance, and that its properties are very easily destroyed—the fear we entertain in the present case is lest the heat employed in baking the biscuits destroys the activity of the digestive principle, pepsine. With a view to put this question to the test, we have made the following experiments:—One of the biscuits was mashed up with warm water at a temperature of 98° Fahr., and kept at that heat for some hours; another biscuit, free from pepsine, was treated in the same manner for the sake of comparison. A second pepsine biscuit was broken up in warm water like the first, and little strips of meat immersed in the mixture. In none of the cases were the results of a very marked character, nor could we perceive any difference in the condition of the biscuits or meat in the several cases.

### PRESERVED MILK, PREPARED BY THE ANGLO-SWISS CONDENSED MILK COMPANY.

On board ship, and wherever men and women are congregated together in numbers remote from pasture land, an adequate supply of milk becomes a matter of difficulty, if not impossibility. Until recently, sailors and travellers on board ship have had to put up with some very unsatisfactory compounds which have been made to do duty for that much abused but most valuable of all liquid articles of food, milk. Of late years, however, the method of preserving milk in very tolerable condition has been discovered. This consists in part of depriving the milk, at a low temperature, of the greater part of its water, which forms by far the largest portion, and in adding white sugar in powder. A sample of the preserved milk prepared by the Anglo-Swiss Condensed Milk Company furnished, on analysis, the following results:—

| | Per cent. |
|---|---|
| Water ... ... ... ... ... | 24·32 |
| Sugar of milk ... ... ... ... | 14·62 |
| Cane sugar ... ... ... ... | 37·18 |
| Fat ... ... ... ... ... | 9·87 |
| Albuminous matter, including casein | 10·98 |
| Mineral matter ... ... ... ... | 2·62 |
| | 99·59 |

Containing 1·69 gr. of nitrogen.

Moreover we found that as regards preservation and taste the condition of this preserved milk was satisfactory, and that it mixed freely with tea or coffee,

# Foreign Gleanings.

### ASPHYXIA FROM REGURGITATION OF CHYME INTO THE RESPIRATORY PASSAGES.

Two cases were lately published in *L'Union Médicale* of death produced by this accident. A third case has just been mentioned in the same journal, the subject being a man about forty, who at the Charité Hospital was looked upon as convalescent, and known to be a glutton. After a copious meal, he was found dead in his bed, not the slightest disturbance having been noticed by those occupying the neighboring beds. On a post-mortem examination, the bronchi were found choked by chyme mixed with blood. The same fluid, without the admixture of blood, was filling the stomach. It is supposed that a violent inspiration had been the cause of this rapid passage of chyme into the bronchi, followed by immediate asphyxia.

### DISLOCATION OF THE HIP OF SEVEN MONTHS; ATTEMPT AT REDUCTION; FATAL RESULT.

A man, twenty-nine years old, was received at the Pitié Hospital of Paris, on the 13th of May last, in the condition above stated. M. Broca attempted to reduce it, using a force of 480 lbs. No reduction was obtained, and the patient insisted upon leaving the hospital five days afterwards. A fortnight then elapsed, when he presented himself at another hospital, with the hip enormously swollen, and died the next day of peritonitis. The autopsy showed that the head lay in the ischiatic notch, that it was held firmly by bundles of the torn capsule, and that the cotyloid cavity was much shrunk. Pus was found in the capsule, in the iliac fossa, in the articular cavities, and had found its way into the peritoneum, through the obturator foramen.

### DISCHARGE OF A PORTION OF SMALL INTESTINE AFTER THE OPERATION FOR STRANGULATED INGUINAL HERNIA.

M. Mazel publishes in the *Montpellier Méd.* of July, 1868, a case in which the above-mentioned phenomenon took place. The patient was forty-five years old, had never worn a truss, and was operated on the third day after strangulation. A portion of small intestine in a pretty normal state was returned; and the patient remained in a precarious state until the fourteenth day after the operation, when he discharged what he called a piece of skin. This proved to be a piece of small intestine, and the patient slowly recovered. Both Professor Benoit (of Montpellier) and the operator are in doubt respecting the mechanism of this gangrenous separation of intestine.

### THE PARASITES OF GONORRHŒAL, CHANCROUS, AND SYPHILITIC SECRETIONS.

Numerous investigators have, for the last thirty years, endeavored to explain venereal phenomena by the presence of microscopic creatures in the secretions, but no approach to certainty has as yet been made. One of the more recent observers, Prof. Hallier, calls the vegetable parasite which he has found in the above-named secretions "Micrococcus," with varieties according to the kind of venereal complaint. He has further, in examining the secretions of glanders, discovered micrococci similar to those observed in syphilitic pus, thus establishing a supposed connexion between the two diseases. The value of Prof. Hallier's conclusions must of course be tested by further investigations.

## News Items, Medical Facts, &c.

**Medical Self-denial: Municipal Gratitude.**—The Italian Parliament has granted £16 a year to the widows of such medical men, who, having been called upon by the municipalities to treat cholera patients, fell victims to the disease. With two children, £24; with four, £32; and £10 with more than four children; the latter, in all cases, being under age. An effort was made by M. Comin to extend the right of pension to the fathers or mothers of the medical victims, but the proposal was rejected. The talented editor of *L'Imparziale* lashes, in no measured terms, the meanness of the allowances, and calls upon Italian professional men, when requested by the State to take charge of patients during an epidemic, to make their own terms. The same editor takes the opportunity of descanting on the shabby remuneration obtained by medical men in the kingdom of Italy, and adds, by way of analogy, that more liberality exists in France and England, as in the former country every visit is paid for by a napoleon, and the latter by a guinea.

**Melancholy Death of a Physician.**—Dr. Keller, a Russian physician, who had lately been transferred from Dorpat to Tekaterinoslaw, was making his evening round in the hospital. He had just paid much attention to a patient lying in a dangerous state; and, whilst turning to the next bed, he was struck on the head by the patient he had just left, with the metal board on which is fixed the bed card, which the infuriated man had taken down. Dr. Keller suffered so serious a cerebral lesion that he died seven hours afterwards. The assassin, who was moribund, had exhausted his remaining convulsive strength for the dreadful deed, and fell back dead upon his bed.—*Med. Central Zeit.* (Berlin), July 11th, 1868.

**Lister's Method in Germany.**—Dr. Bohm stated, in June last, before the Medical Society of Vienna, that he believed the good effects of this method were mostly owing to occlusion. He expressed himself highly pleased with the results he obtained in some cases; but he found those results exactly the same when using chalksoil without carbolic acid. Hence, the advantages of the method Dr. Bohm attributed mainly to the exclusion of air. Professor Dittel, who has largely experimented with the method, remarked that he had found it very useful in compound fractures; and if the carbolic acid is proved to be an unnecessary addition, the application of the method would become less expensive.

**Necrosis of the Skull, lasting Forty-two Years.**—M. Gayet brought lately before the Society of Medical Sciences of Lyons, the case of a man, aged forty-six, who had died of exhaustion. At four years of age the patient had fallen into the fire and injured his head. Necrosis of the skull was the result, and the frontal and two parietal bones, and a portion of the occipital, gradually crumbled away. General development had, however, taken place; the intellect was pretty clear, and though speech was a little embarrassed, no actual aphasia had ensued. The length of the process is certainly remarkable.

**The Ether Spray used to Allay the Pain of Uprooting Hairs.**—M. Gailleton, of Lyons, has tried the spray in favus, sycosis, and also in impetigo seated in the beard, when it seemed advantageous to pull out the hair. When by means of the ether a given spot has become white and insensible, the hair is quickly uprooted without any pain being experienced by the patient, and the spray is directed to another spot whilst this process is going on, so that the operations succeed each other continuously until all the hair is removed.

**The Yellow Fever in Peru.**—From a letter inserted in the *Allg. Central Zeitung* of July 25th, it appears that the scourge is now raging less severely. The official reports state that from February to May of this year, no less than 4466 individuals died in Lima, not including English and German colonists. In Callao, with a population of 15,000, no less than 3000 fell victims to the fever. It is asserted that this epidemic differs in some respects from the ordinary yellow fever, or "vomito negro" of the West Indies.

**Hospital Surgeons in Paris.**—Hitherto such surgeons were expected to retire at sixty, but a change in the bye-laws has lately extended the limit to sixty-three years. It is said that the change is owing to the somewhat unsatisfactory answering during some of the last competitive examinations. This state of things has induced the authorities to lessen for a time the number of these examinations.

**A Prize of £1000.**—The Marquis of Ourches has left the above sum to be given next year by the Academy of Medicine of Paris to the discoverer of accurate means of distinguishing apparent from real death. The full prize will be awarded if these means may be understood and applied by any one; but it will be reduced to £[illegible]00 if the method can only be used by medical men.

**Physicians versus Surgeons.**—At the Venereal Hospital of Paris one of the surgeoncies is to be abolished, and a physician is to take the appointment. Venereal diseases lie in some degree between physic and surgery. The former seems in the ascendant in the French capital.—At the Lying-in Hospital a similar alteration has taken place.

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# THE LANCET.

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J. HENRY BENNET, M.D., T. WAKLEY, JR., M.R.C.S.E. EDITORS.

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## Clinical Illustrations
### OF
## DISEASES OF THE ABDOMINAL VISCERA.

By STEPHEN H. WARD, M.D. Lond.,

Physician to the Seamen's Hospital "Dreadnought" and to the Hospital for Diseases of the Chest, Victoria-Park.

### ABSCESS OF THE LIVER.

*(Concluded from November No. p. 661.)*

I HAVE noticed the termination of abscess of the liver by external opening and by communication with the lung. It may also effect an opening into some portion of the alimentary canal, and there will be free discharge of pus, mixed or not with blood, from the bowels. I had one case which appeared to terminate in this way, and apparently with satisfactory results, but the man left the hospital before he was quite well, and I heard nothing more of him. The abscess or abscesses may not effect any outlet, and then death or recovery may be the result. The former event will be brought about by the gradually increasing hectic fever and exhaustion induced by the suppurative action going on in the liver, and frequently also by the drain from concomitant chronic dysentery. It is tolerably certain, however, from cases in my experience and in that of other observers, that a natural process of cure occasionally takes place, and that it is effected, as Morehead says, by absorption of the more fluid parts of the pus, so that nothing but a caseous or calcareous substance remains.

The post-mortem inspection of eighteen cases revealed but single abscesses in seven, and two or more in the remaining eleven. In all the cases in which the abscess was single, it was situated in the right lobe of the liver; in three cases it had opened into the lung, in two had pointed and opened externally, and in two was closed, but in one of these was contiguous to, and had established adhesion with, the abdominal parietes. The single abscesses were generally large; sometimes sufficiently so as to have excavated a great part of the liver, and to hold a pint or more of matter. When there were two or more abscesses there was generally one of large size; the rest varying, sometimes not being larger than a pea, and the left lobe of the viscus being the seat of them as well as the right. In cases where the mischief had been of recent date the walls of the abscesses were irregular, jagged, with shreds of liver-tissue hanging from them; and in one or two cases smaller abscesses communicated with the primary large one. In cases of longer standing, the walls of the abscesses were more less smooth and in one or two instances encysted. The abscesses were generally filled with healthy-looking pus, but in one case I find this described as of pinkish hue, and in another as being mixed with blood. In one case only the fluid portion of the pus had become absorbed, and the two or three abscesses which were discovered contained a yellowish substance, of almost waxy consistence. The intervening liver-structure was usually of normal aspect, sometimes paler than usual, and at times mottled, from patchy congestion.

No difficulty generally attends the diagnosis of abscess from hydatid tumours of the liver; the quiet and protracted course of the latter, the absence of severe local and constitutional symptoms pointing pretty conclusively to its nature. But an hydatid tumour may be injured mechanically, and suppurative inflammation set up in it, or in the surrounding hepatic tissue, and then diagnosis is uncertain.

The particulars of the interesting case which I here introduce were forwarded to me by Mr. Knipe, of Melbourne, Derbyshire, after the publication of the first portion of this paper. Mr. Knipe reports the case as follows:—

"Mrs. S——, on August 15th, 1867 came under my care, having been only a few days unwell, with acute pain over the whole region of the liver, sharp febrile disturbance, sickness, &c. The liver I found tender and enlarged in every direction, reaching about an inch below the ribs, and also upwards above the natural limit. Jaundice came on, but not deep, in a few days. Under treatment, the symptoms rapidly subsided, the jaundice disappeard, the swelling abated, and in a fortnight she was entirely well.

"Exactly one month after, she came again under my care, having had pain and slight return of jaundice for a week. I then found the left lobe of the liver greatly enlarged, the right only slightly so; hard and tender, but no fluctuation. The swelling in the left lobe gradually increased, and in seven weeks fluctuation began to be perceptible, and she had one severe rigor. Hiccough now began to be troublesome, and constitutional disturbance more severe. About the end of November there was, on two occasions, a copious discharge per anum of frothy stuff, looking like altered pus, and mixed with clayey motion. These discharges were accompanied by diminution in the size of the swelling. In December it continued to increase, fluctuation became quite distinct, and the tumour very prominent. No further discharge by the bowels taking place, as the patient had sweating, rigors, and hiccough, and there was every prospect of her sinking, I tapped the swelling with a large trocar, and drew off over thirty ounces of offensive pus, having some semi-decomposed clots of blood in it; and afterwards, clear serum-like fluid flowed. A few days after there was another discharge from the wound of stinking pus, and some more watery fluid. I examined carefully for hooklets of ecchinococci; but could find none. The swelling decreased much, and the health of the patient improved rapidly, the wound closing in spite of some efforts I made to keep it open. The swelling remained stationary for a month; then a rigor occurred, and it filled rapidly; and in March it began to point at the edge of the left rectus muscle. On the 18th I opened it with a bistoury, and about twelve ounces of horribly offensive stuff escaped. A few days after I put in a drainage-tube, and the discharge continued free and purulent. Some inflammatory action came on, with a rigor, and in two days a copious discharge took place, and the original wound also reopened. Both wounds discharged slightly for a fortnight or more, the swelling subsided, she recovered her strength, and on April 18th was able to walk to the surgery. There was then only a hard substance to be felt, about the size of an orange, adherent to and evidently part of, the left lobe of the liver. She is now perfectly well, and no abnormality can be felt, though she tells me 'if she gets wind on the stomach she feels a slight dragging at the ribs.' The patient is inclined to ascribe her illness to the pressure of large steel stay-busk at her work, done in a sitting posture. I suspected," adds Mr. Knipe, "hydatid disease, but could not obtain any proof, and the commencement was more like acute hepatitis, and the course rapid."

On careful consideration of the above case, it appears to have been one of hydatid tumour, inflammation in which, and in the adjacent liver tissue, had been excited by the mechanical irritation of the steel busk, as noticed by the patient.

*Treatment.*—The most important point in the treatment of all severe abdominal affections is rest in the horizontal posture, either directly on the back, or with inclination to one or other side as the nature of the case or comfort of the patient may indicate. For the cases of subacute and chronic dysentery which are brought constantly to the *Dreadnought* I have been in the habit of not adopting any medical treatment at the commencement. Mere rest in bed, and the even temperature associated with it, causes a rapid reduction in the frequency of the stools, and alleviation of the constitutional symptoms. The same general indication is all-important in severe recent, or in chronic diarrhœa. In simple perforating ulcer of the stomach, rest on the back for weeks together, coupled with rest to the functions of the stomach by not allowing the patient to take more than small quantities of easily absorbed fluid nutriment, offers in my experience, the only chance of a cure. In typhoid fever, after the acute symptoms have passed, and even when convalescence seems established, if there has been severe intestinal complication, I enjoin protracted rest on the back, with a little inclination to the right side, as affording the best security against perforation. In the disease under consideration rest affords the only possibility of a cure being effected by the natural process which has been alluded to, and even where cure may not result, it materially lessens local and constitutional distress. In the case of successful operation for abscess presently to be introduced, the only relapse into serious symptoms was induced by the patient getting up without permission, and committing, in addition, some little excess in diet.

The dietetic regimen should be restricted to light fluid nutriment, as milk, beef-tea, arrowroot, &c., with the addition of a little wine or weak brandy-and-water. The application of a warm water dressing or large linseed-meal poultice over the region of the liver is comfortable to the patient and may assist in bringing about the pointing of the abscess.

I am not disposed, as is now the fashion, to condemn the use of mercury in all affections of the liver; for I have met with marked success from its exhibition in cases of enlarged congested liver, in which other remedies had failed. In the case which I first cited, it was resorted to without benefit in the early inflammatory stage, but was abandoned when the symptoms of suppuration were manifest. I am inclined to think that it would determine, rather than prevent, the suppurative process.

Nitro-muriatic acid has seemed to do good in these cases; acting as a tonic and alterative, and keeping up healthy action of the sound portion of the liver.

When hepatic abscess is pointing between or beyond the ribs, the question arises as to the propriety of opening it. The considerations adverse to the operation are—1st. The danger of mistaken diagnosis. Annesley and others have known a distended gall-bladder to have been taken for an abscess, an opening to have been made, and death from peritonitis rapidly to have resulted. 2nd. There is danger of a similar result if the abscess has not contracted adhesion with the abdominal parietes. This, as Dr. Budd has suggested, may be determined by marking a line on the parietes along the margin of the liver, and by ascertaining whether this corresponds to the margin of the liver in different positions of the body, and in expiration and inspiration. If we are satisfied that adhesion has taken place, I am in favor of opening the abscess, believing that the risk of air getting into the wound is little as compared with that which would arise from the abscess continuing to extend and break up liver structure, and from the aggravation of constitutional symptoms, also, which would be entailed

Surgery has, however, of late years taught us that more liberties may be taken with the peritoneum than would formerly have been thought practicable; and if the patient's constitutional symptoms were urgent, I would puncture with a fine trocar, whether there were or not evidences of adhesion having taken place. I directed, a short time back, a large hydatid cyst, which evidently had no attachment to the parietal peritoneum, to be tapped with a fine trocar. The operation was performed, thirty-seven ounces of serous fluid drawn off, and not a bad symptom resulted. Dr. Morehead has given some good practical suggestions in reference to the operation in abscess. He thinks that when the abscess appears to be single, is well defined, and is pointing either at the epigastrium or below the ribs, it is wise to wait until the inflammatory blush on the skin appears, and then to open freely with a bistoury, so as to admit of ready discharge of contents. Where, however, there is a mere general bulging of the right ribs below the seventh, fulness of the intercostal spaces, and obscure fluctuation, or an extensive swelling below the ribs or at the epigastrium with distinct fluctuation, he recommends puncture with a small trocar, and gradual evacuation of contents. I have not made trial of the practice formerly adopted in India, of thrusting an exploratory needle into the liver where abscess is suspected; and I feel the force of Dr. Budd's remarks against it—namely: that there is risk of hæmorrhage, and of escape of blood or pus into the peritoneum (to this I do not attach much weight); that the site of the abscess may not be hit upon; and that there may be more abscesses than one. Dr. Morehead says that the adoption of this line of practice in India was limited to one or two Presidencies, that it was condemned by most Indian practitioners, and that it was soon abandoned.

Any individual who has suffered under the symptoms of hepatic abscess, and has had the good fortune to recover, should be content to pass the remainder of his life in England or some other temperate climate. A young gentleman in the civil service in India, who was invalided home for dysentery and hepatic affection, came under my care about four years ago with well-marked symptoms of abscess. He recovered, and insisted upon returning to India, where, as I heard, he died, from fresh suppurative inflammation of the liver, a few months after his arrival.

The circumstances that render the prognosis unfavorable in cases of the affection I have been considering are—

1. Plurality of abscesses.
2. Coexistence of severe dysentery.
3. The exhausted constitutional state of those who are invalided home with the affection.
4. Injudicious depletory treatment in the early stage.

I conclude with the introduction of the following case, in which puncture was attended with a successful result:—

W. O——, aged thirty, was received on board the *Dreadnought* on Feb. 3rd, 1860. Of mixed lymphatic and sanguine temperament. States that he had good health up to two years and a half back, when he arrived at Demerara from England. After being on shore there for three weeks, he was attacked with quotidian ague, and after suffering from this for a week he fell a victim to yellow fever. From this he rallied in about ten days, but the ague continued. During his illness he was in hospital, and left relieved, with the intention of returning to England. Two weeks after, he says he was very thin and in bad health, and a diarrhœa came on, which compelled him to return to the hospital in Demerara. There he remained for three months, suffering under dysentery and ague, attended with vomiting. He left in comparatively fair health, but still had vomiting; and after a week at sea, on his homeward voyage the argue returned. This and the vomiting continued through the passage. On arriving in England he felt better, and after a short time attached himself to a vessel bound for St. Thomas, and enjoyed tolerable health for some period. About eighteen months back, at Bombay, he again fell ill, had loss of appetite, vomiting, and diarrhœa. He got into better health after a time, and continued in it until a few weeks back, when, on voyage from Calcutta to England, he began to feel pain at the scrobiculus cordis and in the right shoulder, and to have nausea and vomiting and occasional shiverings, which symptoms continued up to the time of his admission. Notwithstanding his ill-health, on his arrival at Southamptom, he went, to use his own phrase, on a spree for a week or two, drinking, &c.

The symptoms on admission were, distinct prominence of the right hypochondrium, with fluctuation and tendency to point to the left of the right cartilages; pain in shoulder and on pressure over liver; diarrhœa; weak, rapid pulse; hectic, and much prostration. He had not, and had never had, jaundice. He was kept on his back in bed, warm-water dressing was applied over the liver, and he was ordered fluid diet, and wine and brandy.

On Feb. 10th there was redness of surface, and tolerably clear evidence of adhesion of surface of tumour with parietes, and an opening was made by Mr. Bedford, from which several ounces of pus were discharged. A poultice was subsequently applied, and he was kept perfectly quiet.

The abscess continued to discharge healthy pus daily, and his health gradually improved. He was kept strictly on fluid diet, with a fair quantity of stimulus. He had a relapse of serious symptoms, as pain, sickness, and diarrhœa, but it was due to his own imprudence in disobeying orders as to rest and diet. The report on the 2nd of March was: Sleeps well, lying towards left side; has no pain; bowels act every third day; appetite good; a small quantity of matter is still discharged. On March 15th the wound had healed. He was kept quiet, and on fluid diet, for some time longer, and was discharged cured on April 12th. The man presented himself at the *Dreadnought* for some trifling ailment a year or two later, and had had no return of symptoms connected with the liver.

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**An Order in Council has been issued prohibiting the landing of hay from the United States at any port in the United Kingdom without a special licence under the authority of the Privy Council. The prevalence of cattle disease in America renders this precautionary measure absolutely essential for the protection of our stock.**

# Original Papers.

## SUGGESTIONS FOR RENDERING MEDICO-MENTAL SCIENCE AVAILABLE TO THE BETTER ADMINISTRATION OF JUSTICE, AND THE MORE EFFECTUAL PREVENTION OF LUNACY, VICE, AND CRIME.*

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That medico-mental science is often at variance with the doctrines and decisions of the courts of law is a fact too well known and two generally admitted to need formal proof. It is almost as generally assumed that the consequent scandalous failures of justice, which too often occur, must be attributed to the defective education and knowledge of the profession. It is alleged that, as a body, we are for the most part ignorant and theoretical in matters relating to insanity; and if not ignorant then presuming, and using the little knowledge we possess rather with the intent to rescue thieves and murderers from the legal consequences of their crimes than to help the doing of justice. It is certainly a fact, which many of us lament, that the corporate bodies of the profession generally, including the Medical Council, ignore medico-mental science as a distinct department of medical education; and consequently medical practitioners, not being duly trained, do sometimes appear to great disadvantage in courts of law.

Medical shortcomings are not, however, the subject of my paper, but certain fundamental defects in the principles and procedures of the law itself, which render medico-mental science sometimes even worse than useless, and always less useful to the commonweal than it might be, if rightly adapted to the needs of modern society. Nor would it be difficult to show that some of the crime and folly which occupy our courts and fill our reformatories, prisons, workhouses, and lunatic asylums, is capable of prevention by a well-devised use of medico-mental science. As these matters are wholly beyond the powers of the profession, I shall ask leave to move, at the close of the discussion, that a committee be appointed with powers to take such steps as may be thought necessary to secure a thorough inquiry by the Government into the relations of medical science to the administration of the law in regard to all persons alleged to be mentally disordered or defective, with a view to such improvements as may be practicable.

I do not presume to controvert the legal dictum that in this department, as in others, law in the abstract is the perfection of reason and common sense; but the contrary. The principle of the law is perfectly just and reasonable—namely, that both the legal responsibilities and the rights of an individual may be either restricted or wholly abolished, provided it be proved that he is mentally incapacitated for his duties or the use of his rights by either bodily disorder or defect. So that, in any trial which thus involves either the rights or the responsibilities of an individual, two distinct questions arise firstly, Is or was the individual mentally incapable? And secondly, Is or was the incapacity due to bodily cause, and not to ignorance and vice? The first is plainly a question for a jury, to be determined by evidence of the conduct of the individual; the second. as plainly, can only be determined according to the rules of medical art, and by those versed in the kind of facts which constitute evidence of bodily disorder and defect. It is obviously in recognition of this principle that the opinions of medical practitioners are held to be necessary to the administration of the law in these cases. Existing defects are not therefore due to error in the fundamental principles of the law so much as to imperfect interpretations and applications of those principles. And I shall show that these are imperfect, partly because guided by obsolete medical doctrines, and partly because of defects in legal and medico-legal procedure. Some of these doctrines, indeed, so far from being in harmony with modern science, have really no ground in the common sense and experience of mankind. The legal responsibilities and rights of the young, termed infants in legal phrase, may serve as an illustration. The law in the abstract justly and rightly affirms that the young members of society are incapable and irresponsible in proportion to the incompleteness of their development, whether it be of body or of mind. Marriage is one of the first and most important of social duties, and the law therefore rightly undertakes to fix the age at which young persons are sufficiently developed to procreate and duly bring up children. This question, which is strictly within the domain of physiology and medical psychology, as well as common sense, is thus settled by the law as to females. In Ireland a woman cannot marry without consent until she is eighteen years old; in England she may marry at sixteen; but in Scotland a girl of twelve and a boy of fourteen can enter legally upon this duty. Now puberty, even in the south of Europe, is not attained so early, and still later in Scotland, so that such a law, if proposed now for the first time, would be at once repudiated, as only applicable to other races of men in other climes. If we inquire how this strange notion came to be part of the law of Scotland, we find it was transmitted from ancient Rome; further inquiry shows that Rome received the law from more ancient Greece, the great source of Latin literature and laws; and going still deeper into antiquity, it seems probable that Greece received it from more ancient Egypt, or else from the great and still more ancient Aryan source of Western language and customs.

The question of mental incapacity from disease or defect entered into and regulated all the proceedings as to person and property of the ancient Roman law. This principle has also been preserved to a great extent in Scotland as to property. But in England, while a person equally as in Scotland ceases to be a minor or an incapable at twenty-one, if he be at that age imbecile, foolishly prodigal (*prodigus*), facile in temper, and weak in judgment because undeveloped in brain and intellect,—in England the ancient common sense distinction between idiocy or defect and insanity or disease is not merely lost sight of, but repudiated. Lord Westbury said approvingly in the House of Lords, "originally there was a difference, but it has long since disappeared." And Lord Chelmsford said, on the same occasion (viz., the discussion of the Lunacy Regulation Bill, March 12th, 1862): "Under the existing law no person however extravagant, foolish, or prodigal, could be made the subject of a commission of lunacy unless his acts were such as to lead a jury to the conclusion that he was of unsound mind, and a verdict founded on imbecility or weakness of mind would be set aside as contrary to law." In short, the courts, abandoning the true principle of law, proceed to discuss the metaphysical questions of a man's sanity or insanity. Milton has rèpresented the fallen angels as sitting apart in hell and discussing insoluble metaphysical questions like those raised in the courts, and a witty friend of mine affirms that the great poet did this to show that evil spirits were tormented, even in their recreations, by their bad proclivities, and that their appropriate punishment was to be "in wandering mazes lost." So, in truth, too often in the course of things in our courts when insanity is the question discussed.

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* **Read at the annual meeting of the Medico Psychological Association.**

Adults are subject to disorder and decline of the faculties, which place them in the same position in regard to property as infants and minors. Senile dementia—that "second childhood" which surely comes to every man and woman that lives long enough—may come on at an early age. In Scotland the same sound principles apply to these cases as to the others; but in England there must be the inquiry, not into incapacity, but into insanity. In Scotland the patient may secure protection privately, and avoid a jury-trial; in England his private affairs must be subjected, at great cost, to a commission sitting publicly, or to a jury.

The vice of irresistible drunkenness is an apt illustration of the transitional form of incapacity and irresponsibility in which physiological and pathological conditions combine. Nothing is more certain than the fact that a man having attained adult age, with all the responsibilities of a husband, father, and citizen, becomes an incorrigible drunkard, and quite incapable, from bodily causes, of performing his duties. He is too often a brutal ruffian, commonly a prodigal and a fool, yet the law of England does not provide for an inquiry into his capability of self control, except in so far as to whether he be insane or not. Pending the solution of this insoluble question, he breeds drunkards to the third and fourth generation, ruins his family, and too often it is only bodily weakness, suicide, raving insanity, or an early death from disease, which saves him from the gallows. Surely common sense, Christian ethics, and medical science are agreed here, that it is a question of capability for the performance of duty with which society has to deal, and not a metaphysical question as to insanity. Probably in practice such a method of dealing with these cases would prove the most efficient check on the vice itself.

That numerous vices and crimes originate in disordered brain-function is one of the principal discoveries of modern medicine; up to a late period the subjects of the disorder were classed with those who yielded to the temptations either of the world, or the flesh, or the devil; and even now those subtle morbid suggestions and impulses to do evil which are of the essence of the disorder are not unfrequently attributed, as formerly, from a very remote antiquity, to supernatural influences. A transitional kind, in which there are fixed ideas and delusions, yet a certain coherence of ideas, is termed partial insanity, monomania and the like. To understand how the law deals with this class of cases it is necessary to examine its general principles. The Roman law treated raving maniacs, termed *furiosi*, as irresponsible agents; furiosity in Scotland is a term borrowed from Roman law, and means precisely what raving madness is in England. That persons who commit vice and crime in consequence of disease are to be excused from punishment is a natural principle of justice. And Lord Coke therefore truly says, that to execute an insane person is contrary to all law, and pregnant with the greatest danger. The Code Napoleon—the criminal code not less of ancient than of modern France—provides thus: "With respect to every crime and every kind of misdemeanor, no man can be made accountable who at the time he does the act is under aberration of mind." The French courts avail themselves of the knowledge of experts in determining the state of mind of alleged lunatics, but even with this help the French judges cannot understand the true nature of will-insantity. If it be alleged that a criminal has an irresistible impulse to commit crime, they epigrammatically say the law has equally an irresistible impulse to punish him. In England the old Roman notion of furiosity or raving madness is the measure of irresponsibility. If there be coherence of ideas with insanity of the will, the case is held to be only partial insanity or monomania. Chief Justice Hale, notorious for his superstitious persecution of decrepid old women, under the name of witches, is curiously, but significantly enough, a leading authority amongst modern judges, and was quoted as such in the House of Lords by two Lord Chancellors. It is needless to say that he disregards in his dicta alike the principles of pathology and common sense, and of ethics founded thereon. "Partial insanity," he says, "is no excuse; this is the condition of very many, especially melancholy persons, who, for the most part, discover their defect in excessive fears and griefs, and yet are not wholly destitute of reason; and this partial insanity seems not to excuse them in committing any offence, for it is matter capital. It is very difficult to determine the indivisible line that divides perfect and partial insanity, but it must rest upon circumstances to be duly weighed and considered both by judge and jury." What this judge meant by determining an indivisible line, and what the circumstances a jury has to weigh, have never been clearly explained, although the attempt has often been made. Hale's dictum has nevertheless become practically part of the law of the United Kingdom. If an insane man commit homicide in consequence of his insanity he is amenable, provided he be not wholly destitute of reason, and he is held to be not so destitute if at the time he committed the act he knew right from wrong. When public vengeance was balked by the acquittal of M'Naghten, who shot Mr. Drummond in mistake for Sir R. Peel, a discussion arose in the House of Lords, on March 13th, 1843, as to the law. The then Lord Chancellor, Lord Lyndhurst, declared that there was no doubt as to the law; that it is clear, distinct, and defined. In support of this opinion he quoted from the charges to juries in cases of alleged insanity made by very eminent judges, and he showed how all concurred in the legal principle, that a man is not to be held judicially insane when tried criminally if he knew right from wrong. Lord Brougham followed. It does not clearly appear (see Hansard, vol. lxvii. 3rd series, p. 727) what opinions he held. He certainly differed from Hale and the other judges when he said, "It is perfectly clear that what was called partial insanity and what was called, very incorrectly, monomania, if it existed at all times, made a person a lunatic;" apparently meaning thereby a lunatic in a legal sense—i. e., irresponsible. And although he seemed to agree with the current legal dicta in the main, he criticised the judicial explanations of it very severely. "What," he asks, "was the test as laid down by the learned judges? Here he might observe that he could have wished those learned persons had always used the same language, and that they had been pleased to substitute for certain vague indefinite expressions a more specific and precise phraseology. Their lordships had sometimes said that a man must be 'capable of knowing right from wrong.' That was the most common definition; but at other times they said he must be 'capable of distinguishing good from evil'—a totally different expression, more vague and lax.....A man might know right from wrong, and not know good from evil. Then there came in a third expression—'capable of knowing what was proper.' Another expression used was—'what was wicked.' So that there were four different tests in four different forms of expression: every one of them more vague, more uncertain, less easily acted on than the original one of right and wrong." With that politeness, however, which became the august body he addressed Lord Brougham added that, although he was not sure that juries always knew "right and wrong" when thus vaguely charged from the bench, he knew, and their lordships knew, perfectly well what those learned judges meant by "right and wrong;" but he was not sure the public at large did. Again, Lord Campbell declared, in concurrence with Lord Brougham, that "he had looked into all cases that had occurred since Arnold's case, and, looking to the directions of the judges in the cases of Arnold, of Lord Ferres, of Bellingham, of Oxford, of Francis, and of M'Naghten, he must be allowed to say that there was a wide difference both in meaning and in words in their description of the law." The real cause of these acknowledged defects in the declaration of the law from the bench is in the utter obscurity and impracticability of the original dictum of Hale, upon which it is founded. There is, as the metaphysicians say, knowledge *in esse* and knowledge *in posse*—knowledge that is or can be remembered and applied, and knowledge that is not or cannot. When a cobbler working at his last tells me he was brought up to be a priest, and is in truth the Pope, it may be fairly inferred that, at the time he affirms the fact, his knowledge that he has been brought up and is a cobbler, is only *in esse*, and not *in posse*. So it is in dreaming, in many daily actions of life, and never more commonly from disease than in insanity. In short, in insanity, as in many other mental conditions, the conduct depends, not on what the man knows in the abstract, but on what he remembers at the moment: a state of mind to which no one—nay, not even the individual himself—can give evidence, except as to mere probabilities.

It is not surprising, then, that when a medical witness is asked to state his opinion, in accordance with the dictum, the results are so unsatisfactory. It cannot be otherwise in the nature of things; and it may be a subject for consideration whether the practitioner should not always decline to answer the questions so put to him, as being on a matter beyond his knowledge. I know of no parallel to the position of a medical witness, when asked whether the culprit at the bar knew right from wrong at the time he committed a certain act, than that of the prophet Daniel when he was called upon to act professionally by a historical melancholaic, the Great King Nebuchadnezzar. He has to divine both the legal dream and the interpretation thereof; and of course, he fails.

Let us further inquire how other fundamental principles of law are applied to the procedure of the courts in cases of alleged lunacy. The law as to witchcraft held that a woman accused of it must be held to be guilty until it was proved she was innocent, and the result was that multitudes of innocent persons were found guilty in default of proof. In like manner the law holds that every man must be held to be of sound mind when he committed a certain act, and the like difficulty of proof gives the like results. If the act has been done by a raving maniac, that he was insane is plain to the dullest understanding; but if he be an ordinary lunatic, poverty-stricken and perhaps imbecile, what chance has he of fulfilling the requirements of the law? Even if charitable persons were to undertake the costly duty of securing the requisite proofs (which is rarely done), it may be and often is impossible to satisfy the legal requirements. Thus a failure in evidence which would, and too often does, allow a ruffian to escape the punishment due to his crimes, because the law holds every man innocent until he is proved to be guilty, establishes the guilt of the insane criminal, who otherwise would be held to be innocent and an object of pity. I will quote a case in point, as related by Lord Lyndhurst in the House of Lords:—"A man was indicted [in a Scotch court] for the murder of another by shooting him whilst he was going across a moor. The defence set up was insanity. And the delusion the prisoner labored under was this. He supposed the man that he had shot to be an evil spirit, whom he was commanded by the Almighty to kill. No one doubted that if the facts necessary to support the defence had been made out to the satisfaction of the jury, the judge would have considered it a sufficient defence; but the facts were not made out and the man was found guilty." Lord Lyndhurst related the case simply in illustration, and not in disapproval, of the law. Indeed, it seems never to have occurred to the high legal authorities who discussed this question that in cases like this, and in all cases of delusions, the only direct evidence possible of the facts is the statement of the subject of them. All that medical science can do is to say whether such statement is probably a true statement or not; and as to this, the evidence upon which the medical practitioner forms his opinion must be not only necessarily circumstantial, but only valid even to that extent in proportion to his scientific and practical knowledge of insane delusions. This points to the need of experts to administer the law.

I might add much to the influence of strong prejudices upon the courts to the disadvantage of medical witnesses, as well as of the insane criminal and his plea for mercy. These are so strong that even eminent men like the late Archbishop Whatley have not hesitated to advocate the indiscriminate hanging of all who plead insanity in cases of homicide; yet if law in the abstract, which admits of extenuating circumstances were duly applied, instead of a hard and fast line metaphysically invisible as well as "indivisible," there would be little difficulty. Just as in those cases in which insanity is not pleaded, but great and sudden provocation, or infirmity of health and temper and will, the law mercifully recognises the validity of the plea, so that murder becomes only manslaughter or culpable homicide, so it might be held when insanity is pleaded. While the culprit is declared guilty, an inquiry might be made as to how far there was in his state of health any extenuation of the crime, and what punishment if any, be inflicted. I by no means overlook the fact that the treatment of the so-called partially insane in the courts has its origin in the deep-rooted conviction that they are capable of self-control, that they are therefore responsible agents, and that it is necessary to punish them criminally so as to afford a salutary example to others. I shall not enter upon so large a question but would simply state here my mature conviction that a graduated scale of detention would act far more powerfully as a deterrent than the punishment of death, which latter, indeed, is not only insanely desired in some cases of lunacy but rationally desirable in preference to life-long detention.

The safety of life and property must, however, always be the great end of all law and justice, and to this end medico-mental science is most available to the prevention of vice and crime, whether by lunatics or not. A certain number of individuals in the United Kingdom lose their self control and commit suicide, to the extent of one in about every six hours. This is the result of causes exciting and predisposing, of imperfect brain-nutrition, which to a considerable extent are preventable. So also with the majority of murders, which are committed in defiance of an ignominious death, as is proved by such phrases as "I'll do it if I swing for it," and the like. Further, there is a large number of criminals termed in France the "classes dangereuses," and, in English phrase, "known to the police;" and another still more numerous body, not exactly of this class, but incorrigible vagabonds, drunkards, mendicants. All these, numbering tens of thousands, are really so constituted corporeally that they possess no self-control beyond that of an ordinary brute animal—nay, less than a well-bred horse or dog. They are for the most part immoral imbeciles, so that however frequently they may have been subjected to prison discipline the moment they are set free they resume their vicious and criminal course. Many of the imbeciles confined for life in asylums and workhouses only differ from these creatures in wanting the opportunity or the training for vicious courses. They are all the mere weeds of society; but the weeds multiply their kind, and thus continually keep up the breed. The law of hereditary transmission of mental and moral qualities, in these as in all other organisms, is inexorable. An army of police is required, in two divisions—one to watch and capture, and the other to restrain, these moral imbeciles; one division being in the field, the other in the garrisons—the borough and county prisons.

What would common sense indicate as the proper method of treating these cases? Surely as what they are—i. e., cases of incapacity; and would detain them under curators who would make them work. And as they are, for the most part, of the fertile age, and naturally propagate their kind, it would take care, at the same time, to prevent an increase of the breed. The law, however, allows them freedom to commit crimes, and add to the vicious population. The surgeon of a large prison in Yorkshire told me one of these incorrigibles—a woman, whom he delivered of twins in the prison,—that the birth took place just nine months after a previous dismissal from prison—ripe no doubt, for immediate conception.

An illustration of how the jail-bird began his career as a nestling I quote from a number of the *Pall Mall Gazette* for May last in the form of a dialogue which is stated to have taken place between a visiting magistrate at one of the City jails and a juvenile offender serving out his three months:—"How old are you?" "Please, Sir, I'm thirteen." "How often have you been in jail?" "Please, Sir, eight times." "Have you ever been in Reading jail?" "Please, Sir, once." "Have you ever been in Westminster jail?" "Please, Sir, once." "How often have you been here?" "Please, Sir, six times." "Why do you come here so often?" "Please, Sir, becos at Westminster the turnkeys knocks yer about with their keys." "How do you contrive to get sent here?" "Please, Sir, I allus prigs in Holborn now." This poor jail-bird had even learned politeness; yet he "allus prigs" when out of prison.

When a Bill providing that the sheriff might have power to send these habitual offenders to prison for a lengthened period was discussed lately in the convocation of the Royal Scottish Burghs, at Edinburgh, Lord Provost Chambers is reported to have said "he knew of a case in Edinburgh of a man seventy years of age who had spent forty years of his life in prison, a month at a time. He had been somewhere about 103 times in prison for small offences. If the Bill would cure such a state of things as that, it would receive his warmest commendation."

Nor is the prison management of these imbeciles satisfactory. They are sometimes treated as lunatics used to be treated. At an inquest held upon a prisoner who died insane in Millbank prison, the deputy governor testified that previously to his death the man was ordered to be placed in a penal service cell with matted walls for six months. And upon a late occasion at Millbank there were observed as many as a hundred imbecile and epileptic convicts confined in long galleries padded several feet high with thick matting to prevent the prisoners from injuring themselves against the walls.

It has been alleged that each of these incorrigible moral imbeciles costs the country, including the cost of depredations, an average of £300 annually. If treated exactly as what they are—namely as hopelessly devoid of that moral sense and judgment which give the power of self-restraint, and in the spirit of Christain forbearance, kindness, and charity,—they would be prevented multiplying their kind, and made in a great degree self-supporting.

A too apt illustration of the evil results which follow upon this gross neglect of the simplest principles of medical psychology is shown by the condition of the children brought up in workhouses. They are described by Miss Hill ("Children of the State: the training of Juvenile Paupers") as dull of apprehension, ill-tempered, indolent and listless, incapable, spiritless, and stupid to the last degree—in short, mere imbeciles. They indicate the traits of the rising generation of incorrigibles outside. Of the 300,000 educated in the workhouse, 80 per cent. are failures when sent into the world. A large proportion pursue evil courses, join the predatory classes, or fall stupidly into crime; or else they either return to the workhouse where they were reared, or become inmates of the county asylum. I might, if time allowed, point out how drunken vicious imbeciles, tainting their offspring to the third and fourth generation, serve to fill our asylums to overflowing; and that, unless means be taken to restrict their personal liberty during the fertile period of life, there must of necessity be a continual increase in the insane, imbecile, vicious, and degraded part of our population.

*Conclusions.*—If a Royal Commission were issued to inquire into these important matters, it would have abundant evidence brought before it to show—1. That the present state of our jurisprudence in regard to persons mentally incapable and irresponsible is in every way defective. 2. That the existing defects are not due so much to defects and errors in the fundamental principles either of law or of medicine, as to errors and defects in the interpretation and application of those principles; partly in consequence of their obsolete character, and partly because of corruptions of the law. 3. That the doctrines laid down in 1843 by the twelve English judges are of this obsolete character, and are therefore out of relation to the present state of medical science and experience. 4. That, although medico-mental science is still imperfect, it has advanced so rapidly concurrently with other sciences during the last half-century as to be largely available not only to the better administration of justice, but also to the prevention of lunacy and crime.

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# ON THE SOUNDS OF THE HEART IN THEIR RELATION TO PATHOLOGY.

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It is now a low time since I first brought forward an entirely new explanation of the sounds of the heart, founded upon carefully made experiments. Coming as a disturbing influence after the question appeared to have been authoritatively settled, one could hardly wonder if its recognition has been tardy. Nevertheless many have fully accepted my views

No subject in physiology has engrossed more time to so little purpose. "So many works," says Rayer and Barth in their essay on Auscultation, "have been published on this subject that science is really encumbered by them, and through the mist of opposite theories and contradictory facts the observer is scarcely regaled by a single beam of truth." Yet, barren as the results have proved, this is strong testimony to the interest as well as to the importance of the investigation.

As for my own explanation, experience and an extended observation of its relation to pathology have only strengthened first convictions. It is chiefly this relation, and evidence founded on certain clinical facts, that I now propose to lay before the profession.

Both the normal and the abnormal sounds formed by the circulation of the blood, complicated as they are apparently, have causes more simple and more closely allied than is generally supposed. Now, it will be at least granted that whatever explanation of the normal sounds fits into and accords most clearly, and in the larger number of instances, with the explanation of their abnormal changes, is most worthy of acceptance; and, conversely, it will be conceded that any theory which is incapable of adaptation in a salient and important respect should be rejected.

The morbid auscultatory phenomena of the heart, considered in their various relations to time, rythm, position, &c., are very numerous; but it is remarkable how little the connexion between these sounds and the natural sounds of the heart has been taken into consideration by authors. From causes which will afterwards appear, most theorists have, indeed, been obliged to ignore any connexion between the two classes of sounds. Yet there are certain broad facts in which, if physiology and pathology do not agree, there must be a complete absence of truth on one side or on the other. *De minimis lex non curat:* in like manner I propose, as sufficient for my present purpose, to deal with the more important points of cardiac diagnosis, and to test the truth of the prevailing theories of the sounds of the heart by investigating the connexion which exists between the sounds issuing from the organ in a state of health and in disease. I must refer to what I have published on the subject for the facts and arguments upon which the present views are mainly founded.[*] It will, however, be necessary to state briefly the views themselves, and to point out how they differ from those which have enjoyed the longest and most general acceptance.

In common with every other sound formed by the circulation, the sounds of the heart mainly emanate from the blood itself. They are not *essentially* due to the vibration of valves or to the tension of muscle; and if these causes do contribute in a minor degree to form the sounds, either exceptionally or constantly, my argument is not affected thereby.

If the blood of natural consistency circulated in its vessels under the natural pressure and without any rhythmic motion, no sound whatever would be caused. But since it is thrown into broken and impetuous currents by the action of a powerful forcing pump—for such the heart is—

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[*] On the Sounds Caused by the Circulation of the Blood 1861.

sounds are necessarily produced. These sounds are formed on the same principle as those which occur from the action of water in certain hydraulic apparatus.

But besides rhythmic motions, certain conditions must be present to produce the particular sounds in the heart which we associate with health. If one or more of these conditions be wanting, it either happens that the sounds formed are nearly inaudible, as in case of extreme debility of the heart, or else new sounds are developed, which indicate particular forms of disease.

Both the first and the second sound of the heart are formed by the blood in the commencement of the aorta and pulmonary artery, and the mechanism of both are closely allied.[*] It will best serve my purpose to quote here in part what I have already published on this subject.

"The *first sound* coincides with the ventricular systole, and is caused as follows:—Blood, having been driven from the ventricles into the aorta and pulmonary artery, comes into forcible contact with blood in these vessels, which, supported by their semilunar valves, had attained a state of momentary repose. The impact between the fluid in motion and that in a state of rest gives rise to the sound. The well-known *thud* heard during the action of the common forcing-pump is chiefly due to an analogous cause; that is, to the impact between water thrown into violent motion and stationary water in the discharge-pipe. ........

"Four conditions are necessary for the production of the perfect first sound:—1. Sufficient viscidity of the blood. 2. Sufficient pressure upon the blood. 3. Sufficient force in the circulation. 4. The absence of obstruction at the outlet of the heart. When all these conditions are fulfilled, the result is a perfect shock sound. If, however, the first condition (viscidity) be wanting, we find in place of it the blowing sound of anæmia. Pressure on the blood prevents murmur by preventing friction. When the pressure is much diminished by hæmorrhage, the first sound in this case also changes to a murmur. The force of the adult left ventricle has been variously stated; but the estimate of Valentin, that it is sufficient to overcome a resistance of four pounds, seems probable. It is at all events certain that when the force of the heart is much diminished, as occurs in certain fevers and in syncope, the first sound becomes impaired, or is altogether lost. The fourth condition—absence of abrupt interference with the current—is resolvable into the sound. For any obstruction at the mouth of the aorta or pulmonary artery, whether it be obstruction of its calibre, or the projection of an atheromatous deposit, must cause diminished pressure in the vessel beyond the obstruction." The principles upon which a murmur is then formed will be hereafter explained.

"The *second sound*[†] occurs during diastole, and in its mechanism closely resembles the first. The blood having been driven with much force into the aorta and pulmonary artery, a portion of it recoils, but is checked in its rapid descent towards the heart by the semilunar valves. The sound is caused by the concussion thus induced, the force of which is, however, by no means sustained by the valves alone, for they are thoroughly supported by the ventricles and their contents. This is obvious since there can be no approach to a vacuum in the heart. The valves are to be regarded as separating media which do not themselves sustain the force of the descending blood. A valve thus supported is known in the arts as an equilibrium valve. An experiment at hand in most houses demonstrates the principle on which the second sound is formed. When a cock, attached to the lower end of a perpendicular pipe of some length, through which water is flowing from a cistern, is suddenly turned, a loud jarring sound is heard.[*] It is caused by a concussion in the water from the sudden arrest of its onward flow. The semilunar valves are here represented by the plug of the cock, and, allowing for the difference between rigid and flexible materials, the conditions are very similar, since the elastic reaction of the vessels effects a pressure on the blood which is effected in case of the water by length of the pipe. If, then, the pipe and cistern are capable of yielding a sound which may be heard at a considerable distance, it cannot be wondered at if the heart and its vessels, on the same principle, give rise to sounds audible through a stethoscope or by direct contact with the body. If the cock is only turned so as to allow even a small portion of water to pass through, a rushing sound (in this case continuous) results. The change of the normal sound into a murmur from incompetency of the valves is thus demonstrated. The second is a sharper and shorter sound than the first, because the separation between the opposing blood is definite and complete. We have seen that in case of the first sound several conditions are necessary to ensure sufficient molecular cohesion in the separate bodies of blood at the moment of contact, which must also be accompanied by considerable force. But the intervention of valves in the present case causes the conditions to undergo considerable modifications. Less force is requisite. It is for this reason that loss of power in the heart affects the first sound so much sooner than the second. Viscidity of the blood is not a necessary condition; hence in anæmia the second sound never degenerates, like the first, into a murmur. On the other hand, a condition peculiar to the second sound is, that the valves shall be competent. If the closure of the aortic valves is imperfectly performed, the well-known bruit from aortic regurgitation occurs, and this may completely supplant the normal second sound."

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[*] On this point, the assertion of so competent an authority as Cruveilhier is worth quoting. In his examination of an infant born with the heart exposed, he found that the maximum intensity of both sounds was at the same place—the base; and he observes: "Hence it is at the base of the organ we are to look for the cause of these sounds." (Cruveilhier, *Gaz. Médicale de Paris*, 1841.)

[†] The cause of the second sound is that about which opinions are at present most agreed. It is assigned to vibration of the sigmoid valves by those who differ widely in respect to the first sound. As might be expected, therefore, my explanation of the formation of the second sound has been less generally regarded favorably than has that which I have given of the first sound. But in the *British Medical Journal*, May, 12th, 1866, Dr. Shapter put forward the same views about the second sound. On the publication of my statement that he had been anticipated (Ibid., Aug. 4th, 1866), my priority in the matter was acknowledged by Dr. Shapter in courteous terms (Ibid., Sept. 1st, 1866).

[*] An effectual method of preventing this noise is sometimes adopted. It consists in connecting the part of the pipe above, but close to the cock, by means of a small tube with a chamber containing air, by whose elasticity all concussion is done away with. I am curious to know whether the sounds of the heart have ever been observed to have been wanting in cases of admission of air into the blood-vessels; for if the air had reached the aorta, I would expect the second sound at least to be annulled.

The fact that the second sound is often replaced by a murmur of moderate loudness, so that any other sound would not be drowned by it, affords a strong proof that the normal sound is formed by concussion of blood, as already described; for if it were caused by vibration of the aortic valve, the closure of even one segment of it, supposing, as is often the case, this to remain healthy, would *pro tanto* be sufficient to produce a normal sound that would always be heard coincidently with the abnormal sound.

An objection has been raised against the present explanation of the first sound which cannot be passed over here. It has been alleged that there can be neither stroke nor concussion formed between blood issuing from the ventricles and the passive blood in the great vessels. Dr. Billing, in particular, says: "He [Dr. Leared] does not seem to recollect that (unlike the stiff valves in his experiment) the sigmoid valves float as flaccid and passive in the outflowing stream of blood as the long leaves of a water-plant waving in a running stream. And, moreover, there is no *concussion* when the blood from the ventricle *pushes* forward the blood in the artery."*

Now if the analogy derived from the force-pump is insufficient, let me once more refer to the noise which occurs when the flow of water from a pipe is suddenly arrested by turning a cock. For the formation of this sound a small amount of pressure on the moving water is sufficient. But let me ask whether the ejection of its contents with a force equal to four pounds against stationary blood in the aorta is not also likely to cause sound? A concussion occurs between the opposing bodies of blood just as when the flow of blood or water through a tube is instantaneously stopped. Water is very incompressible, and in this respect a column of the fluid, although moving rapidly in a tube, may almost be regarded as a solid bar, like so much iron. We nevertheless observe that the commotion caused in its particles by turning the cock produces a loud noise. Hence it is certain that in case of blood moving impetuously, whether out of or towards the ventricle, sound must be caused. There is, indeed, a difference not only in the direction but in the degree of force. The descending blood is sonorous because it is suddenly arrested; and the ascending blood is also sonorous, because checked, although less completely, by the obstruction it meets from the contents of the aorta. And it is because of this incompleteness that much greater force is requisite for the formation of the first sound than of the second, which coincides with what has been previously stated. Moreover, the duller and more prolonged first sound proclaims its origin in a less perfect concussion, although induced by a much greater force of propulsion.

In short, there is no escape from the conclusion that, since sounds are formed by water in the manner described, they must, under the same conditions, be also caused in blood within the living body. There is, of course, an enormous difference between the conduction of sound by soft and by hard substances. If the heart and its vessels were made of some sonorous metal its sounds would be a nuisance to ourselves and to all about us. In the silence of night we are occasionally troubled by the low but still self-audible sounds formed within us. It is at least satisfactory to know that they are formed in the blood itself, and not, as some believe, by the rude tension of, and great pressure upon, valves not thicker than ordinary writing-paper. In the case above supposed, repose would be impossible, and life itself unbearable.

An aortic murmur, then, is nothing more than the modified shock or normal sound; and all the sounds formed by the circulation of the blood are closely correlated in their causes. Now since certain conditions are requisite for the formation of the normal or perfect sound, I shall henceforth use the term "degeneration" to express any imperfection that depends upon the absence of one or more of these conditions.

I must here call attention to a very inaccurate expression commonly used by medical authors. Speaking of murmurs in the heart, they say "there was a *bruit de soufflet with* the first sound," or "*with* the second sound," as the case may be. Obviously this arises out of the false conclusion that the normal sounds have their origin in something different from that which produces murmurs. But, if that be the case, a sound emanating from anything but the blood itself, be it muscle or valve, would invariably be heard coincidently with a murmur, which is an admitted blood-sound, except when the murmur is loud enough to drown the normal sound—a rare occurrence. When the subject is thus approached, an incongruity is perceived, and, to elude this, a phrase, not based on the candor which science demands, is employed; for the normal sounds are not generally accompanied by, but substituted by, murmurs.

From the rarity of disease at the right side of the heart, practically, the pathology of its left side alone concerns us. But if, while we listen to an uncomplicated murmur either at base or apex at this side, the stethoscope be slightly shifted to the right, the faint normal sound of the right heart may be generally heard coincidently with the murmur from the left. In fairly considering this subject, therefore, the duplicate origin of the sounds must be kept in view; nor, indeed, is the possibility of the formation of an imperfect normal sound synchronously with a murmur, and both at the left side, denied. What is objected to is, the general instead of the exceptional employment of a mode of expression by which erroneous theories are sought to be propped.

But besides degeneration into murmur, the first sound is especially liable to alterations in intensity, duration, and pitch. These changes cannot be so well accounted for by any explanation of its cause as by the present. They are due to variations in the force with which the blood is impelled, or else in its pressure or viscidity, according to which the production of murmur is approached or receded from. By no other means can the complete degeneration of the sound into a murmur of *moderate loudness* be satisfactorily explained. Nor do the exceptional cases mentioned affect the statement at first made, that it is no less wrongly than constantly said, "there was a murmur *with*," when it ought to be *instead* of, the first sound.

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* On the lungs and Heart. p. 24

The proportion of sound contributed by the right side of the heart to form the normal sounds, compared with that contributed by the left side, is small. But the right ventricle is thinner than the left, and, according to the adherents of the muscular theory, ought in consequence to be the more noisy of the two; because, say they, the thinner the muscle, the sharper and clearer will be the sound produced. What really occurs is the very contrary to this: it is at the thick side of the heart that the sounds are mainly produced. Nor, on the other hand, can the valvular theorists deny that the force with which they must suppose the tricuspid valve to be closed ought to produce so much sound that it would be seldom overpowered by a murmur formed in the left side. The true reason why the sounds essentially belong to the systemic side of the heart is to be found in the far greater force by which the circulation through it is maintained. Less force is obviously necessary at the pulmonic side, because the network of vessels in the lungs through which the blood is propelled presents much less resistance than does the network of vessels in the body at large. But while the normal sounds of the right heart are therefore feeble, its murmurs are, on the other hand, occasionally loud; because, as I have experimentally proved, such murmurs can be produced in fluids moving with moderate velocity.

One of the essentials for the formation of the normal first sound—and mark, not of the second sound—is, that the blood shall have sufficient viscidity. It is quite certain that if water, instead of blood, circulated in the body, no such sound would ever be heard. The first sound would always be a murmur; while the second would be the same as if caused by blood. This is fully sustained by my experiments out of the body, and is proved by the well-known fact that in the anæmic condition the first sound is very frequently replaced by murmur. That some cases of anæmia are unattended by murmur does not upset the argument. One circumstance on which this may depend is, that sometimes no deficiency of fibrin in the blood occurs, and consequently no loss of viscidity ensues.

For my purpose it is sufficient that a watery condition of the blood, in consequence of which it is thrown into sonorous currents, coincides with degeneration of the heart's first sound into murmur.

But why, under the same circumstances, does the second sound always remain unaffected? Because at the time of its formation the blood in the aorta and pulmonary artery is separated from that in the ventricles by closed valves. Hence the formation of sonorous currents, which otherwise, owing to its increased mobility, would occur in the intermingling blood, is prevented. In like manner, when water flowing through a pipe is suddenly arrested, a shock sound, and not a murmur, is produced, because in this case also, and for the same reasons, the quality of the fluid does not essentially affect the quality of the sound. Can the advocates of other theories of the heart's normal sounds afford by them an intelligible explanation of these every-day facts—that, assuming the heart and its great vessels to be healthy, the blood being less viscid than natural, the first sound is prone to *change* into a murmur, while the second sound never so changes?

It is indeed not a little curious how this significant restriction to the first sound of change from normal sound to murmur has been either ignored or lightly passed over by the best authorities. Thus, Dr. Walshe, whose accuracy and minuteness of observation are undeniable, says on the subject, "This murmur is, as far as I have observed, invariably basic in seat and systolic in time, produced at the orifices of the aorta and of the pulmonary artery with a force at each proportional to the power of its communicating ventricle."* But he makes no comment on the remarkable fact that it is never diastolic. Elsewhere, writing of the mechanism of venous murmurs, he says: "It seems to me impossible to ignore the influence of the blood in highly-marked spanæmia; neither flaccidity of veins, pressure on their surface, nor even velocity of current is required for the generation of murmur."† It is unnecessary to say that so far this accords with my own views. But while Dr. Walshe gives indisputable reasons for his assertions, he offers no explanation of the phenomena. Now I venture to maintain that the present theory of blood sounds is not only competent to account for the causation of venous murmurs in anæmia, but to solve a difficulty that can by no other means be solved—namely, why the cardiac murmur is in the same disease always systolic. And moreover, I hold that this degeneration of the first sound exclusively proves conversely that it is essentially formed in and by the blood itself.

Since, then, it is true that an entire change in the normal first sound can be induced by loss o natural viscidity of the fluid in which it is formed, it is to be expected that increase of this quality beyond natural limits would also be associated with changes of sound. There is little doubt that variations in the pitch and duration of the heart's sounds, and of the first sound in particular, are more or less due to this cause. My experiments show that sounds produced in fluids of great viscidity are of very low pitch. In certain fevers fibrin exists in the blood in excess. It is true that in such cases the muscular structure of the heart is apt to become weakened. But may not the impairment of the first sound, so often observed in fever, be sometimes due, in whole or in part, to increased viscidity of the blood?

Sufficient pressure has been stated to be another condition necessary for the formation of the first sound. If this condition be wanting, the effect will be the same as if there were an absence of viscidity.

Diminished pressure implies that the total quantity of blood contained in the heart and vessels is less than natural. Owing to this, the normal tension of the solid parts on the blood is impaired. Hence it happens in this case also that, although of ordinary consistence, the blood, issuing from the ventricles in less volume than natural, forms by friction with that in the great vessels a current-sound; in other words, a murmur, instead of the normal shock-sound.

Nothing can be more conclusive of this position than the fact that one of the effects of excessive hæmorrhage is to transform the first sound, and this alone, into a murmur. The experiments of Dr. Marshall Hall proved that this transformation occurs in dogs; and opportunities of verifying it in the human subject—as, for example, in cases of great loss of blood after parturition—now and then occur.

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* On Diseases of the Lungs and Heart, second edition, p. 242.

† Op. cit., p. 282.

Impairment of quantity of blood, then, produces the same result as impairment of quality. From what has been said previously, it is almost unnecessary to point out that in this case, also, it is the first sound alone which can degenerate. As in the case of loss of viscidity, the integrity of the second sound is always maintained by the separation of the blood by intervening valves.

Here, again, I may be pardoned if I ask the solidists to explain, in accordance with their theories, first, the change of normal sound into murmur; secondly, why the change is exclusively confined to the first sound.

There is a point in connexion with the differential diagnosis between disease of the mitral and aortic orifices or valves, which has long been a matter of interest to me. It is sometimes impossible, by position alone, to determine at which of these orifices a murmur is produced. So often, indeed, is it difficult to decide whether the morbid sound is more distinctly heard at the base or at the apex of the heart, and so frequently in this respect do the results of post-mortem examinations discredit auscultation, that in such cases experienced physicians avoid any precise opinions, unless aided by strong collateral indications.

I leave out of account the obvious possibility of the simultaneous production of murmurs from disease at both orifices. But in cases in which an equal development of murmur has existed, and the mitral valve alone has been found diseased, I believe this to be the explanation. Murmurs were really formed in both situations, and the morbid sound was not merely conducted from the point at which it was formed—namely, the mitral orifice—to that of the aorta; for, supposing that during systole free regurgitation into the auricle occurs through an imperfect mitral valve, this reduces proportionately the quantity of blood sent into the aorta. The aortic orifice is then placed in exactly the same relation to its reduced volume of blood as when the whole volume of the blood in the body is so far diminished by hæmorrhage that only the same quantity as in the previous case issues from the ventricle. Now, we have seen that hæmorrhage, by reducing the amount of blood in the heart, is a direct cause of first-sound degeneration. For the same reason, then, when mitral regurgitation is considerable, the conditions for the production of a double murmur—one being regurgitant and the other direct—are complete. But since these murmurs are synchronous, they are heard as if one only existed, which appears to be equally loud at both apex and base. If, then, we find such an occurrence, according to this view the mitral valve will be found to be the part involved.

Sufficient force in the circulation is a condition so necessary, that, whatever theory of the sounds is adopted, it must always be a constant factor. Loss of force implies loss of velocity in the blood; but this, like that of pressure and of viscidity, does not cause degeneration of the first sound. It merely becomes less loud, or, as in cases of typhus fever, so well pointed out by Dr. Stokes, almost or altogether inaudible

I have carefully sought in vain for any sounds of the heart in the turtle. The sluggish circulation of the amphibia is conducted in silence. But if the heart's sounds are caused by tension of membranes, I would yet ask the valvular theorists,—Is it not likely that, even in such slowly acting hearts, the ventricular contractions would be sufficient to produce enough of this tension to cause some degree of sound? There can be no question but that the force necessary to produce a shock-sound is far greater than the force that would be requisite to produce a valvular sound, supposing such an amount of violence to be ever inflicted upon itself by the living body.

The last condition to be considered is, absence of obstruction at the outlets of the heart. Here, at length, I am in accord with other observers. All are agreed that an impediment to the free discharge of blood may be the cause of murmur. But mark how much less incongruity there is between the present explanations of the normal and the abnormal sounds, than between those which attribute the one to the structures of the heart, and the other to the blood. The first sound, say some observers, is formed by muscular contractions, but according to others by the vibration of valves; while both parties admit that a murmur which replaces it is formed by the blood, either *per se*, or by the vibration which it causes in the arteries. But, according to my views, such a murmur is nothing more than a degenerated first sound—that is, a sound formed without all the conditions necessary for its full development.

The condition that there shall be no obstruction at the mouths of the great vessels is closely allied to another—namely, that there shall be sufficient pressure upon the blood. For an obstruction from atheroma, or a contraction of the vessel itself, produces diminished pressure just beyond such obstruction or contraction, and currents are then permitted by which the integrity of the shock or natural sound is destroyed. And, conversely, a considerable dilatation of the aorta is also a cause of lessened pressure, because the proper relation between the cubic capacity of the left ventricle and the vessel into which it discharges is altered, so that its walls no longer exercise the natural tension upon their contents. Hence it happens that such a dilatation is not unfrequently observed to be the cause of murmur.

It is easy to illustrate by experiment this production of murmur from diminished pressure. Let one end of an india-rubber tube, of an inch diameter and of moderate length, be connected in a perpendicular manner with a cistern containing water, and let the other end be also inserted into a vessel of water. As soon as any air that may have been contained in the tube has been expelled the water will flow through it quite noiselessly. If the tube be now somewhat compressed in the middle, and the ear be applied just below the point of compression, a murmur will be heard. I have elsewhere shown that murmurs can be produced in fluids without the intervention of tubes, and that the murmur is not caused by vibration of the tube itself in the present case is certain. It can be easily proved that the murmur is localised, because, although, partly on account of the continuance of the action in the water by which the sound is formed, and partly from conduction, it may be heard for some distance in the lower part of the tube, the point of greatest intensity is always just below the obstruction, and the sound becomes fainter in proportion as this is receded from. But if the murmur be not due to vibration of the compressed part of the tube itself, why should it be thus localised? The velocity of the water as it passes through the obstruction is in proportion to the pressure upon it; in other words, to the length of the column above it. Now supposing that the tube is obstructed by a diaphragm having a hole in its centre, the external portions, or those nearest the circumference of the tube, of a column of water passing through it, will be partially arrested in its flow by the obstruction. The internal parts of the column corresponding in size with the opening in the diaphragm will at the same time continue to flow without impediment. But as the tube will be full below as well as above the obstruction, the external parts of the column will here also be retarded in their flow, because pressure is removed from them by the diaphragm. Now it is manifest that the more rapidly moving water from above will be driven forcibly through the more sluggish stream below; and at the spot where this first occurs—namely, immediately below the obstruction—the murmur will be most intense, for as this point is receded from the velocity of the two streams becomes equalised, and at length the friction between them, which is the cause of sound, vanishes. This is the true explanation of the formation of murmurs in tubes, and it is evident that the difference in form of the obstruction does not alter the conditions on which their production depends.

Doubling, or reduplication of the heart-sounds, so that a sound, instead of being single, is divided into two sounds, is a curious and obscure phenomenon. It has no necessary connexion with organic changes in the organ, for it occurs frequently in apparently healthy hearts. Want of synchronism in the movements of the ventricles has been stated to be the cause. But, as Dr. Bellingham observes, "from the manner in which the muscular fibres of the two ventricles are arranged, it is difficult to understand how this could occur in the healthy heart." Dr. Walshe says: "Now synchronous tightening of the sigmoid valves easily explains the reduplication of the second sound at the base."* But this explanation is by no means satisfactory, and for this reason. Even if it be granted that the closure of one segment only of the valve is sufficient to produce the first part of the double second sound, it is certain that the later closure of the remaining segment would not give rise to the same kind of sound, but to a murmur. From the partial closure of the aortic orifice by means of one or two segments of the valve, the same results would occur as if permanent patency existed, and we know that murmur is a constant attendant upon this lesion. Double second sound, then, is impossible from the cause assigned, since, even if it be broken into two sounds, the latter one would be murmur. Dr. Stokes says on this subject, "We are not, I believe, yet in a position to explain the nature of this phenomenon."† That the question is a most difficult one will readily be admitted. I agree with Dr. Walshe that "the real interest of reduplications arises out of their bearing on the theory of the heart's sounds." Now it has been objected to my explanation of these sounds that it is incompatible with the phenomenon of reduplication. We shall see if this be so.

Let me, then, once more recur to the cistern and pipe, in which such a loud noise is caused by concussion when the passage of water through the pipe is suddenly arrested.* It may be sometimes noticed that this concussion, as shown by its accompanying sounds, is double—that is, the stroke of the water against the cock is, under certain conditions, repeated. I believe that it occurs only when the pressure of water is moderate, so that the column rebounds, as it were, slightly after the first stroke.

Here, then, we find a perfectly analogous phenomenon occurring without the intervention of ventricles or segmented valves. Since, therefore, the explanations of reduplication that have been offered are shown to be so unsatisfactory, while that now presented is at least reasonable, it may be fairly stated that the supposed difficulty rather strengthens than upsets my views. It is quite certain, at all events, that reduplication of the second sound occurs after *complete* closure of the sigmoid valve, and not by the successive closure of its segments. I believe it happens when the blood-pressure in the aorta is deficient, and probably has a relation to modifications of elasticity in the vessel by which the pressure upon its contents would be affected.

The development of the normal sounds of the heart is dependent, then, upon certain conditions not recognised in any theory but the present. This is especially true as regards the first sound; and the existence of these conditions implies, on the other hand, a healthy state of blood *pro tanto* —that is to say, that its natural viscicity, volume, and velocity are preserved. Thus the first sound may yet become a more subtle index of health than it has been hitherto regarded.

I have, in conclusion, one remark to make, and I make it with much respect for the opinions of the distinguished men who have originated or adopted theories of the causation of the heart's sounds which appear to me untenable. It is this: Leaving other considerations aside, whenever any one reasonably explains, in accordance with the valvular or any other theory but my own, two things explained in this paper, namely, the change of the first sound of the heart into murmur, *and never of its second sound*, in cases of anæmia and of great loss of blood,—then, and not until then, I shall be prepared to alter my present views—possibly to accept others.

Old Burlington street, Sept. 1868.

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* Diseases of the Lungs, Heart, and Aorta, second edition, p. 232.

† Diseases of the Heart and Aorta, p. 116.

* In a recent work on Diseases of the Lungs and Heart, Dr. Waters endeavors to condemn my explanation of the first sound, with what success remains to be seen. He says, "The nature of the concussion is such that we could scarcely expect it to produce a sound.......There is no propulsion of the blood against the passive columns from a distance. There is no space between the blood which fills the ventricles and that in the vessels.......It is contrary to all we know of the phenomena which accompany the passage of liquids in close tubes that a sound should be produced under such circumstances." Indeed! What then becomes of the fact detailed in this paper, of the formation of a loud sound when water flowing through a tube is suddenly arrested by turning a tap. Here nothing else but the concussion between the water and the tap causes the sound. Yet as no space exists between them, the water does not strike from a distance. One "could scarcely expect this result," but so it happens.

FATAL CASE

OF

# ACUTE PROGRESSIVE PARALYSIS.

### FROM SOFTENING AND DISINTEGRATION OF THE SPINAL CORD, ESPECIALLY IN THE ANTERIOR COLUMNS, WITH LOSS OF MOVEMENT, WITHOUT CORRESPONDING LOSS OF SENSATION.

By George Harley, M.D., F.R.S.,

Fellow of the Royal College of Physicians, Professor in
University College, and Physician to
University College Hospital.

## TOGETHER WITH AN ACCOUNT OF THE POST-MORTEM APPEARANCES.

By J. Lockhart Clarke, Esq., F.R.S.

The case about to be recorded is not only an important one in a scientific point of view, on account of its being a marked example of a comparatively rare form of disease, but it has also an additional though melancholy interest attached to it, in consequence of its having occurred in the person of the eldest son of a member of our own profession. It need scarcely be added that it is with the full concurrence of the family that the case is brought under the notice of the profession.

The particulars of the attack, together with some remarks upon it, were written out immediately after my visit to the unfortunate sufferer. They are headed:—"Acute Progressive Paralysis" —a title which, in my opinion, admirably expresses, in general terms, the nature of the affection under which the patient labored,—much better indeed than the word "Myelitis" would have done—a term which is so often made to include all forms of softening of the spinal cord, quite irrespective of the morbid anatomy.

On the afternoon of Saturday, March 18, 186—, I was hastily called to the son of Dr. W——, and found Messrs. Newton and Jakins in attendance. The patient, a well developed, strongly built youth, of seventeen years of age, appeared to have been quite well until a month previously, when he began to feel a slight aching in the limbs—thought it was nothing very particular, only a little cold, until Sunday, the 12th instant, when he first experienced a numbness in the legs and a slight stiffness in the back of his neck. Still thinking it an ordinary cold, he, by the advice of his aunt, rubbed his neck with liniment before going to bed.

On the following day, that is to say Monday the 13th, he got up, dressed himself, and went as usual to his office.[*] During the course of the day he observed for the first time that he had a trifling difficulty in walking. This was five days before I saw him.

On the morning succeeding, Tuesday the 14th the difficulty in walking had increased, and he found that he dragged his limbs slightly. He was still, however, able to go to office, but in a few hours afterwards, while sitting on a high stool in the office, he began to feel as if he were paralysed, and became so bad that he had to be taken home in a cab. On his arrival at home he could not manage to walk up-stairs; but once up and in his bed-room he stood and undressed himself and went to bed. The next day he felt somewhat better, but on the next again, it was thought advisable to have medical advice, and accordingly Mr. Jakins, of Osnaburgh-street, was sent for. When Mr. Jakins first saw him on Thursday the 16th (two days before his death), the pulse was 66, the tongue furred, and the pupils dilated. He complained of no pain, only that his legs were paralysed. The bowels were sluggish but not particularly so, and he made water naturally. One thing that specially attracted Mr. Jakin's attention, was a peculiar expression which passed over the patient's face while talking—a sort of vacant laugh, as if the muscles of the face were slightly affected; it was very transient, vanishing in a few seconds, and did not again reappear. There was then no difficulty in speaking, but the patient complained that much speaking made his tongue tired. He had no difficulty in swallowing. Mr. Jakins prescribed 1-30th of a grain of strychnine every four hours. At his next visit, Friday the 17th, the pulse was 70, and the patient's general condition seemed worse.

Next morning, Saturday the 18th, the unfavorable symptoms had all become exaggerated. The pulse had risen to 90—swallowing was difficult, the patient complained that he felt uncomfortable lying in bed, and preferred sitting in an easy chair. He could not bear to have his legs elevated even to the level of the trunk.

Mr. Jakins now sought the co-operation of Mr. Newton, of Wimple-street, and between three and four o'clock of the same afternoon I was requested to join them in consultation.

On entering the sick chamber I found the patient in bed, lying on the left side with the lower extremities completely paralysed, the upper partially so. He could still move his right arm, but had not sufficient power to squeeze my hand. His intelligence was perfect. He complained of no pain.

The motor nerves of the limbs were alone affected, the sensory were all right, for he felt the slightest touch at any part of the paralysed tract.

Respiration was slow and labored—each inspiration being made with evident effort. The pulse was 120. The tongued furred. The temperature felt natural to the hand. There was no fever. He spoke quite distinctly, though slowly, as if he had a slight difficulty, not in selecting, but in articulating, his words.

He complained that this morning he felt want of power in voiding fæces, but had no loss of power over the bladder. He made water naturally; though that perhaps less straining than usual was required. The power of swallowing had been lost within the last few hours, but his sense of taste remained still unimpaired. The paralysis of the whole motor nerve-system was gradually creeping upwards.

It was melancholy to see this poor lad, who to look at was the very picture of robust health, perfectly unconscious of his danger. The entire absence of pain at this stage of the disease had lulled to sleep his fears, and now on the very verge of eternity he was replying to our questions with a friendly smile. Often has physiological knowledge stood the physician in good stead at the bedside, but never was its aid more useful than on this occasion, for a few leading physiological questions and one or two tests gave the clue to the whole clinical history of the case. The past, present, and future were indeed but too clearly revealed. For complete paralysis of the spinal motor-nerves, with their corresponding sensory branches unaffected—total absence of pain, with perfect intelligence, and yet the unconscious dying, as it were, by inches—are to the experimental physiologist but familiar phenomena. The only difference in the case before us and that of animals experimented upon, being that while in the one inflammatory action and disintegration of nerve fibres are the cause of the symptoms, in the other the phenomena are due to the effect of poison. Conia and woorara are the toxic agents which act most powerfully in this way. More especially woorara, which produces the most perfect paralysis of movement, without any corresponding loss of sensation, while it at the same time leaves, as in the case before us, the intellectual faculties unimpaired. Armed with this knowlege, it required no great power of divination to foretell that, notwithstanding the cheerfulness of the patient and apparent absence of all urgent symptoms, he had at most but an hour or two to live. This opinion was, of course, based upon a calculation made of the progressive march upwards of the disease along the motor-spinal tract since the morning.

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[*] He had only a few week's previously come up from the country, and entered as a junior clerk in an insurance office.

The physiological and clinical history of the case will be more readily understood if I now recapitulate a few of the leading facts indicative of the *progressive* nature of the affection; for although there were early indications of the anterior columns of the cord being implicated throughout almost their whole extent, the total annihilation of function as manifested by the paralysis was gradual and progressive. There was—

1st. The paralysis of the lower limbs, showing that the sacral portion of the spinal cord was the part which earliest became seriously affected.

2nd. Succeeded the paralysis of the abdominal muscles, showing the implication of the lumbar portion of the cord.

3rd. Next followed the paralysis of the lower intercostal muscles, indicating the period when the disease had reached the dorsal region of the cord.

4th. At the time of our consultation it was evident that the annihilation of function had extended to nearly as far up as the lower portion of the cervical region, for not only was there

*a.* The partial paralysis of the upper extremities, showing the implication of the roots of the branchial nerves; but

*b.* Great difficulty of breathing, partly from the act of expiration being unassisted by the paralysed abdominal muscles, and partly from that of inspiration being equally unaided by the intercostals especially the lower. Indeed, at the time I am now speaking of, the function of respiration seemed entirely to depend upon voluntary effort, assisted by the somewhat modified, though still apparent, involuntary action of the diaphragm. So much so, indeed, was this the case, that the patient's attention could not be removed from the respiratory function without causing an immediate increase in his difficulty of breathing.

5th. The difficulty in swallowing was on the increase, and the patient's power of vocalization was gradually diminishing.

Such being the then condition of the patient, it was impossible to shut one's eyes to the fact that the poor lad had but two or at most three hours to live; for, as is well known, as soon as the middle portion of the cervical region of the cord becomes gravely implicated, the phrenic nerves become paralysed, and suffocation is the inevitable result. The respiratory process cannot be sustained by voluntary effort alone; and even if it could, the muscles of forced respiration would in their turn become paralysed, for those of the shoulders also receive their nerves from the cervical portion of the cord.

On communicating the above views to the gentlemen with whom I was associated, they at once concurred in the opinion that not a moment was to be lost in telegraphing for Dr. W—— (who was unfortunately at some distance in the country) in order to give him the chance—although it was but a most forlorn one—of again seeing his son alive. Our treatment was at the same time adapted to this end—not cure, but merely the prolongation of life. With this view, therefore, an enema, consisting of strong beef-tea, brandy, and the tincture of belladonna, was ordered to be administered. The belladonna was added from its supposed specific effect in counteracting hyperæmia of the cord, by causing contraction of its capillary bloodvessels.

The strychnine mixture had been already discontinued by Mr. Jakins, after the patient had taken twelve doses, that is to say, a quantity of strychnine amounting in all to 2–5 of a grain.

In saying that the patient would inevitably be suffocated as soon as the cervical region of the spinal cord became gravely implicated, in consequence of suspension of all respiratory effort, the word "gravely" has been intentionally employed for it is evident that the entire motor tract, from the bottom to the top of the spinal cord, was already more or less affected. The want of power the patient had in voiding the fæces is proof of this, in as far as the lower portion of the cord is concerned, while his difficulty in swallowing and impaired vocalization is equal proof of the uppermost portions being also implicated. Facts which are the more surprising, seeing that there was an entire absence of any signs which could lead to the supposition that the sensory tract was also affected, for it is almost impossible for one to imagine that such extensive longitudinal inflammatory lesion of the anterior columns could exist without, to some extent, transversely implicating the neighboring sensory portions of the cord.

There is to my mind, however, a much easier way of accounting for such entire absence of sensory paralysis in a case of this kind—namely, that serious pathological changes must exist in the nervous system before the lesion is made manifest by objective phenomena.

The spinal cord being composed of innumerable nerve bundles, and every nerve bundle being made up of many individual nerve fibres, it is easy to see how if a single nerve tube in each bundle remained intact, it could conduct impressions to the brain, although all its fellows were disorganized. Just in the same way as a single wire in a submarine telegraph cable will suffice for the transmission of messages, although all its fellows be so damaged as to render them useless. More over, it will be presently seen that this theory is supported by the anatomical conditions which were found to exist in the cord.

The poor patient succumbed, asphyxiated in the manner predicted, just two hours after our consultation, and the post-mortem was performed on the following day. Unfortunately I was unable to be present at the autopsy, in consequence of an unexpected call into the country. Mr. Lockhart Clarke, however, kindly took my place, and the following is his valuable report both of the naked eye and microscopical appearances:—

*Examination of the body* (*March* 19*th*) *twenty-one hours after death.*—Rigor mortis was strongly marked. There was very great discoloration about the shoulders and back, from gravitation. When the body was turned over a considerable quantity of frothy mucus, colored with blood, escaped from the nostrils, and was followed by a stream of very dark and almost black blood. On making incisions along the sides of the spinal column, a great deal of the same kind of blood flowed very freely; and on carrying an incision through the integuments of the occiput, an extraordinary large quantity—certainly more than a pint—escaped in a rapid stream.

*Spinal Cord.*—The vessels on its surface were much congested. From the lower part of the eighth dorsal to the first lumbar nerves, the surface of the anterior columns was raised at numerous points into small hemispherical and softened eminences, of about the diameter of a mustard-seed. In some places these elevations were isolated, in others they were closely aggregated into groups. On making a transverse section of the cord at the ninth dorsal nerves, its substance generally was found to be soft and vascular. A small piece scooped from the softened surface of the anterior columns, and examined under the microscope without further disturbance, and without covering glass to avoid compression, showed the nerve fibres to be exceedingly damaged. With a few exceptions, it was impossible to distinguish the axis-cylinder from the white substance or medullary sheath, which was either ragged, puckered, wrinkled, or granular, or partially stripped from the axis-cylinder.

Throughout the whole of the conus medullaris and lower parts of lumbar enlargement there was no perceptible alteration of structure in either the white or grey substance, and through the middle of the same enlargement the only morbid appearance was great congestion of the pia mater, with softening of the surface of the anterior columns, involving the anterior roots, between which some of the fibres of the columns had undergone grey disintegration, as had also some points at the surface of the lateral columns. Indeed, a much broader line than usual of the connective-tissue surrounded the whole of the cord. The surface of the posterior columns immediately below the thickened pia mater had not escaped, for it was a little damaged by softening. On a level with the first lumbar nerves, areas of fluid disintegration surrounding bloodvessels began to make their appearance in the grey substance at the sides of the canal; and one long tract, in a semi-fluid state, extended, on the left side from before backward, through a great part of the posterior horn, and upward along the cord for about half an inch, when it suddenly disappeared. Immediately above this point, however the deep portion of the posterior column of the same side presented an irregular and fluid area of considerable size, in which nerve fibres could be seen in a state of partial disintegration. Transverse sections at this part showed the unusual appearance of two central canals instead of one, each surrounded by a regular layer of columnar epithelium and further separated from the other by a confused heap of the same bodies. This appearance although uncommon, must not be regarded as the result of disease.

On a level with the lower part of the twelfth dorsal nerves, the grey substance surrounding a bloodvessel on the right side of the canal, and at the base of the posterior vesicular column, was reduced to a state of granular fluid, and a few sections higher up a similar lesion was observed in the corresponding part on the left. The anterior decussating commissure at the bottom of the anterior median fissure was also damaged by disintegration of its fibres. The surface of the posterior columns was somewhat softened, and that of the anterior columns had suffered in a similar way, but in a greater degree. On all sides the pia mater was thickened and congested. These lesions, however, rapidly diminished on ascending the cord for a short distance, so that at the upper part of the eleventh dorsal nerves scarcely any morbid appearance was observed in either the grey or white substance. On a level with the tenth nerves, the principal lesion consisted in the softening at the surface of the anterior columns, at the entrance of the anterior roots; for although the grey substance was congested, it presented only a few marks of structural change. At the ninth dorsal nerves, however, disintegration like those already described re-appeared in the grey substance, at the sides of the central canal, and at the bases of the posterior horns, while the surface of all the white columns, but particularly of the anterior columns, was much softer. These structural changes, however, rapidly diminished on ascending the cord, so that nearly all the upper two-thirds of the dorsal region were only slightly affected. The greater part of the cervical enlargement presented no abnormal appearance, except congestion of its substance generally, and of the surrounding pia mater, particularly at the anterior columns, where a granular exudation in some places enveloped the roots of the nerves. But at the upper third of this region several of the bloodvessels on both sides of the central canal, and in the posterior commissure, were surrounded by circular and oval areas of granular and fluid exudation, which continued upward, with some increase as high as the second cervical nerves. For about the same length of the cord also the deep portions of the posterior columns between the horns were softened to a considerable degree; and the anterior roots of the nerves were in some places still enveloped in exudation from the surface of the pia mater.

From the first cervical nerve upward nothing remarkable was observed. The whole of the medulla oblongata and fourth ventricle appeared to be perfectly healthy.

# OBSERVATIONS ON OPHTHALMIC SURGERY.

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## SYMPATHETIC OPHTHALMIA.

THIS is the diseased effect on the one eyeball, of a certain morbid condition which has previously existed in the other, in consequence, for the most part, of wounds that puncture or lacerate; but also from blows without any breach of surface; as well as any mechanical or chemical injury that induces disorganisation; from acute inflammation ending in suppuration; from idiopathic inflammation of a destructive nature; from the intrusion of extraneous substances; from the development within the eye of deposits, cretaceous or bony; or from a tumour. Even surgical operations may produce it, of which the following examples are on record:—

The operation for the extraction of cataract was done on the left eye of a man between seventy and eighty years of age; the iris prolapsed, and chronic inflammation ensued. Three months later sympathetic inflammation caused rapid loss of sight of the right eye. A second case is that of a lady of delicate constitution, who had a full-formed cataract in one eye and an immature one in the other. The mature cataract was extracted; a small prolapse of the iris ensued; nitrate of silver was applied; severe pain and long-continued irritation followed. Three weeks later sympathetic ophthalmia attacked the other eye, and produced perfect blindness.

The application of a glass mask in the treatment of symblepharon, as recorded by Mr. Solomon (*Dublin Quarterly Journal* for 1863), acted as an excitant. The continued use of a worn-out and roughened artificial eye has been the origin of the evil. Iridectomy even is included in this catalogue.

It is a very dangerous malady, and the destructive effects are manifested by inflammatory changes of a low or subacute form, influenced perhaps by the low state of general health; for the inflammatory effusion is quickly organised. It may be termed the most destructive and dangerous inflammation to which the eye is subject; for if left to itself it invariably ends in blindness. It commences insidiously, and may spoil an eye, when occurring in children, almost before it is perceived.

Long ago it was publicly noticed by Himly, and Beer, and Mackenzie; by the last of whom it was named reflex opthalmia. He used as a synonym, sympathetic.

The diagnosis of the sympathetic action can be made only by studying at the same time the cause as well as the effect; by examining together the two eyes; for its subjective and objective symptoms differ in no respect from those of some other maladies.

Care must be exercised not to pass the disease unrecognised, and not to mistake another affection for it, by supposing that the sympathetic influence prevails when there is nothing of the kind, but merely the same local manifestation of constitutional taint that exists in the other eye, and secondary only in the order of time. The traumatic cases are the most readily perceived. The exciting eye, that orginally diseased, is always destroyed for visual purpose by structural disorganisation of some of its parts, separate and distinct from any physical incapacity, such as opacity of the cornea, or closure of the pupil, or cataract. It has been wounded perhaps severely, and the lens has escaped, or a portion of the vitreous humour; or perhaps the cornea only has been penetrated, or the iris or the lens penetrated; or it has been unmistakably damaged in another way, either within or without. Acute inflammation supervenes, and ultimately lapses into chronic. The time occupied by these stages of disease varies. The injury and its ravages may be confined to the anterior part of the eye, while vitreous humour and the posterior parts are intact, or disorganisation may reach all the internal tissues. These are important facts which have practical bearings.

The inflammatory action by which the exciting eye is first irritated, from any of the many causes that have been named, may seem to get well quickly, and the eye appear to recover from all vascular excitement. It is rare indeed for any sympathy to set in during this primary inflammation, if it may be so called. But there is a repetition of the inflammation without any apparent cause, or from the excitement of a blow or something else; and it now appears in a chronic form. This may remit and recur again and again.

It is nearly always during the chronic disease that the sympathy is induced; and although the symptoms of such disease may be slight—and it is more marked in some cases than in others,—it is always capable of detection. There is a definite kind of action that can be recognised at a particular time and in a particular tissue as the origin or starting of the bad influence; but enough can be detected sufficiently early to enable that to be done which is right, and this should suffice for the practical student. Hair-splitting must be left to the theorist. There is invariably soreness of the eyeball when it is touched. This is never absent; it may be the only symptom, and should always be sought for. A sense of general discomfort is next commonly present, with paroxysms of pain. If there be generally any surface redness, it is more marked at this time.

The sympathising eye has its symptoms well marked, although the nature of the danger is not known—still less any warnings understood. They are definite and easy of recognition.

A certain condition is often met with in an eye just after its fellow has been wounded and sight destroyed; and the same may be seen after unsuccessful operations on the eyeball. There is fatigue from reading, a sense of weakness, and even intolerance of light. This is not the morbid sympathy which is being treated of; for it soon passes away, after getting better day by day.

Intolerance of light, for the most part associated with slight lachrymation, is the first common result. Some form of impaired sight is the next bad omen; and this is shown in defective accommodation, such as incapability of sustaining vision on minute objects, and loss of definition,—hence the feeling of discomfort or distress which ensues when the eye is used. This simulates asthenopia. Muscæ, spectra, flashes, stars, and coruscations follow. Redness of the eyeball is now apparent; and it is at first that kind of vascularity about the ciliary region, from the greater development of veins, which is the consequence of increased vascularity within the eye. If pain has not set in, it will appear now. It may be slight or severe. It may be of neuralgic character, and the supra-orbital nerve may be implicated. The eyeball is intolerant of touch from the pain that any pressure occasions, especially over the ciliary region. There are now apparent appreciable structural changes, and the outer parts of the eye undergo those morbid alterations which are so familiar in an eye that is damaged by slow inflammation, especially of a rheumatic or of a gouty origin. The pupil contracts adhesions, and is no longer free. The iris seems discolored,—probably from the aqueous humor becoming serous. It then loses the markings of its fibres, being infiltrated with fibrin, and unites itself with the capsule of the lens. The pupil area is closed with lymph. The cornea is often hazy from nebulous deposits, in the form of minute dots in its posterior elastic membrane. Softening, of the eyeball, with shrinking, are the later manifestations.

It is not worth while stopping to discuss the texture that is first involved: whether the morbid action begins in the retina and travels forward, or in the front of the eye and proceeds backwards: whether the eye is threatened with retinitis, iritis, or iridocyclitis, &c.

Such is the group of symptoms as they generally appear; but variation is met with. In one case the pain will be the leading feature; in another it may not exist. In some, the inflammatory changes in the iris and about the ciliary region most attract attention. Then the failing vision may alone, for a long time, point to the existence of the disease. It may therefore seem from a superficial observation, that there are different kinds of sympathetic injury. But there are not. It would be as incorrect to suppose that different kinds of syphilitic virus affect the eye, because in the one instance the retina alone is attacked, in another the iris shows the greatest change, and in a third the entire eyeball is diseased. A general and comprehensive view must be taken, the one origin alone of the evil received, and the several symptoms regarded as the many features of the same disease. In former years I thought such plurality probable; for it seemed to me that there was sympathetic irritation that could be readily stopped, distinct and apart from the graver and more advanced disease which is characterised by fibrinous infiltration into all the internal tissues except the lens, and produces those changes which end in atrophy. Being aware, now, that any early symptoms, or anything which may be called irritation, inasmuch as there yet lacks inflammation, does in the end, if left alone, pass into destructive changes, and that the same consummation follows any variation in the order of the symptoms, in their duration, or in their intensity, I cannot resist my present conviction. But really the question of classification is immaterial, as there is only one remedy.

The sympathetic effect may appear at any time. It may ensue in a few weeks or months, or not for years. The latter condition is the more often seen where there is an extraneous body in the eye.

In young persons and in children the affection is more acute and rapid than in adults.

The sympathy is always imminent where an eye has been blinded by an accident, or disease originating within itself; for such are mostly disorganised eyes, and may at any time pass into that condition of chronic inflammation which will kindle the sympathy. It matters not how long a time may have passed since sight was lost whether one year or twenty, or fifty or more. It is that such eyes have a tendency to degenerate, and to form new products; and calcareous deposits and osseous are common. These are apt to induce a disturbance, which is transmitted. Cretaceous degeneration of the crystalline lens and of its capsule is no uncommon source of the sympathy. Osseous degeneration of these parts may produce the same effects. The altered lens, including its capsule, is generally adherent to the iris. I have traced irritation to have commenced from its becoming loose. The earthy degeneration may be simultaneously formed in several portions of the eye, between the retina and the choroid, in the lens, and in a corneal cicatrix. Osseous degeneration of any of these parts or osseous deposits may produce similar irritation.

Sympathetic ophthalmia does not always proceed in any regular ratio, and the determination seems to depend on the intensity and on the rate of progress of the exciting action, whether quick and severe, or slight and slow. This will explain its remission and recurrence. The irregularity might tend to cause an error in the diagnosis, and should be taken into account. To guard against mistake, it is necessary only to ascertain if there be simultaneous disease in the two eyes, the presence of which is confirmatory of the implication. If, then, a patient who had lost an eye from accident or disease were to apply to me on account of the eye heretofore well, but now attacked with symptoms that I have pointed out of sympathetic derangement, and palpably paroxysmal, I should examine the eye primarily injured, or whatever remained of it, and if I discovered any morbid action of the nature described, I should say that I had before me a case of sympathetic ophthalmia.

Fortunately the disease is not common. It is rare. With all my opportunities for observation, I meet with few examples. A year may pass, or even a longer time, without my seeing an example. It is difficult to understand how some men abroad meet with them in such large numbers.

*Ophthalmoscopic symptoms.*—The internal examination of the eyes gives no assistance in diagnosis because organic changes are not visible till late in the disease. In many of the cases examined by me at the commencement I have detected nothing. Even after there has been much intolerance of light, muscæ, spectra, and flashes, no change was perceptible. Later in the disease the choroid and the retina are congested or there is haziness of the vitreous humor, by which the fundus is obscured. It has been said that excavation of the optic disc is a characteristic mark.

Is there any general means of preventing sympathetic inflammation? is a question that has often occurred to me. I believe that much may be done to hinder it, as it often comes on in consequence of neglected disease. Is there anything which predisposes the second eye to the sympathy? I think that the answer must be, there is not. It creeps on without imprudence or any external influence that would be injurious under ordinary circumstances. In two recorded cases it was supposed that excessive reading had developed it; but the accuracy of this is questionable.

The treatment will be given in the next communication.

Brook-street, September, 1868.

ON THE

# FUNCTION OF THE GANGLIONIC SYSTEM IN RELATION TO THE OPERATIONS OF MIND.

By Metcalfe Johnson, Esq., M.R.C.S.E.

Observation of the effects of organs, such as the liver, uterus, &c. (under the influence of the ganglionic nerves), in conditions of disease, upon the mental operations, shows us that mind is not solely the result of the cerebro-spinal system in the performance of its duties, but the consequence of the combined efforts of both systems.

The frequent insanity of persons of depraved habits of the sexual organs, the depressed spirits or hypochondriasis of hepatic disorders, the vomiting of cerebral disease, the diuresis of mental excitement, the diaphoresis of fear, as well as the lachrymosis of grief, point to the conclusion that the ganglionic and cerebro-spinal functions are so inseparately connected that we may safely infer that mental operations result from the combined efforts of the whole nervous system, ganglionic a well as cerebral—in fact, that *corpus sanum* is the *propter hoc* of *mens sana.*

The enantia of mind are instinct and experience, or sense, just as ozone and antozone are the enantia composing oxygen. It may be said that instinct is common to the whole animal kingdom, while sense is proper to the vertebrata. True, attempts have been made to show a cerebrum in some of the invertebrate animals; but if we allow the performances of the insect world to result from experience, we shall conclude, after the experiments of Maraldi and Kœnig, that the bee is possessed of the highest mental organism of all created nature; for where is there in the most civilised states one which evinces such perfection of social, sanatory, and constructive laws?

The instincts proper to the whole animal kingdom are two, gastric and genital; the former to serve for the maintenance of the animal; the latter for its perpetuation. The senses, commonly called five, are in reality but modifications of the one function of sensation. That the instincts are the *propter hoc* of ganglionic, and sense of cerebro-spinal system will be seen in the sequel. The coincidence of instinct and sense, invertebrate, and vertebrate is, at least, remarkable.

From the tree to man we find a gradual transition of nervous function, only remarking the hiatus between Mollusca and Pisces, which has as yet never been spanned. The tree is insensible to external touch. The sensitive plant (first homologue of sensation) presents a remarkable peculiarity. Chara, Diatoms, Paramæcium, Volvox, and Vorticella (first homologue of reflex motion) show progressive stages of the functior. Beroe pileus (first distinct ganglia) and the diploneurose system in Articulata are steps in advance. But in Ascaris we observe the first evidence of the binary form of instinct anatomically developed in the two ganglionic rings around the mouth and female vulva—an evidence of the gastric and genital instincts. The nervous ring around the œsophagus in Rotifera (first supra-œsophageal ganglion) and prolongation to a cord (first homologue of spinal column) in Hydatina. Chains of symmetrical ganglia, with enlarged supra- and sub-œsophageal ganglia, in Papilio brassicæ and the concentrated ganglia of the imago of Melolontha vulgaris. These evince successive developments of ganglia till we arrive at the higher forms of Mollusca, and thus at an end of the invertebrate system. In this class of creatures we observe the reign of ganglia, and evidence only of instinct.

Passing now to fishes, we find a new neural element, Prosencephalon of Owen, who says:—"The anatomical condition of the prosencephalon (of fishes), and its homology with the hemispheres of the bird's brain experimented on by Flourens, would lead to the belief that it was in this division of the fish's brain that impressions became sensations, and that here was the seat of tenable ideas." From the smooth brain of fish to the convoluted brain of man is but one gradual progression of successive forms of perfection. And with this increase of convolution is evidence of increased perception, of sense, and of reasoning power.

Taking man, then, as the subject of our investigation, we will inquire, What are the functions performed by the various component parts which go to make up the one whole Mind? And these parts are, (1) the cerebro-spinal nerves, terminating in corpus striatum and thalamus opticus; (2) cortical structure, or grey matter, of cerebrum; and (3) the ganglionic system of nerves.

First of Nerves. Kirkes (in his Handbook of Physiology) says: "Nerve-fibres appear to possess no power of generating force in themselves" (p. 390). "All nerve-fibres are mere conductors of impressions" (p. 392). "No nerve-fibre can convey more than one kind of impression" (p. 394). They consist of two sets of fibres, afferent and efferent.

Now of Thalamus and Corpus Striatum—homologues of supra- and sub-œsophageal ganglia, "most assuredly to be regarded as ganglionic centres" (Carpenter, p. 677). They are not the ultimate links in the chain in the manifestation of psychological phenomena; as they may be injured, and yet mind remain. (See Wilks, Guy's Hosp. Rep. 1866.) They seem capable of receiving stimuli from afferent and conveying them to efferent nerves. (See Carpenter's Comp. Physiol.: on the automatic motions of pigeons after removal of cerebrum in slices.)

Now, as regards Grey Matter of Convolutions, Sir C. Bell says: "I have never seen disease general on the surface of the hemispheres without derangement of the mind."

In general paralysis, whose earliest symptom is some eccentricity or other mental aberration. Wilks recognises "chronic change in the brain, especially the grey substance.......The wasted brain (convolutions) in delirium tremens denotes a failure of mental power.......There can be no doubt that this portion of the brain (cineritious substance) is intimately connected with the intellectual operations."—(Wilks, Guy's Hospital Reports, 1866.)

"There seems a strong probability that there is not a direct continuity between any of the nerve-fibres distributed to the body and the medullary substance of the cerebrum. Although it was long held as a physiological truth that the principal part of the sensory fibres passes up to the grey matter which forms the surface of the cerebral hemispheres, and that the fibres which are subservient to voluntary motion originate in the same situation, and pass downwards through the spinal cord and nerve-trunks to the muscles; yet anatomical inquiry fails to sanction such a doctrine, and tends, concurrently with the results of physiological investigation, to the conclusion that no sensory fibres pass upwards beyond the chain of sensory ganglia (including the thalami optici), and that no motor fibres really originate from any higher point than the corpora striata."—(Carpenter, Compar. Physiol.)

Dr. Wilks mentions a preparation in Guy's Museum (1564$^{75}$) of a slice of brain, showing the separation of the external layer of the cineritious substance.

"The observations of Prof. Wâgner, who enjoyed several opportunities of examining the brains of men endowed with great power of intellect, seem to point to the conclusion that the more richly convoluted brains coexist with great intelligence."—(See Turner on Convolutions of Cerebrum.)

"Now if it be true that the superficial grey matter is intimately connected with mental activity, then it follows that the multiplicity of the convolutions is connected with the development and increase of intellectual capacity, the substratum of which is the increased quantity of grey matter."—(See Carl Vogt, Lectures on Man.)

Finally, with respect to the Sympathetic system: "The sympathetic nerve when excited produces contraction in the arteries. If you divide on one side the branches which supply the globe of the eye, you will very soon remark a notable hyperæsthesia of the conjunctiva follow on the operation. If we divide the sympathetic nerve, the vessels are then dilated, and the blood passes from the arteries into the veins without undergoing any material change; and when drawn from the jugular it is almost as ruddy as that which escapes from a wound inflicted on the carotid. It was formerly believed that the oxygen introduced into the lungs was then and there combined with the elements of the blood. We are now aware that the combination of oxygen with the cast-off materials of the economy takes place, not within the lungs, but in the very depths of the tissues themselves. If it is intended to propel the blood from the arterial into the venous system without altering its properties, to accelerate its passage is the safest method of obtaining this result. If, on the contrary, it is desired to create in this respect as wide a difference as possible, these opposite effects are produced by galvanising or dividing the sympathetic nerve. The numerous vessels which ramify in the brain and spinal cord being placed under the control of the ganglionic system, the influence of the sympathetic nerves extends to the very centre of the nervous system. In the experiments of Donders (the introduction of a thermometer into the skull after the division of all the branches of the upper cervical ganglion the cerebral substance itself participates in the effects of this operation, its temperature rises, its vascularity increases. When the ramifications of the system (sympathetic), which spread to the outer ear in rabbits, are separated from the centre of nervous action, the vessels are dilated, the blood flows in an arterial state to the veins, and the ultimate result is an augmentation of temperature in the affected region."—(Claude Bernard on the Spinal Cord.)

Passing, then, in review the opinions of these various authors, and considering the facts which they bring forward, a theory of mentation may be deduced as follows:—The afferent nerve conveys the impression produced by an external stimulus (say the prick of a pin) to the sentient nerve of the skin; a sound or combination of waves of sounds to the tympanic nerve; a smell, composed of odoriferous particles, to the olfactory; or a taste to the gustatory. This impression passes through the nerve-fibre to the ganglionic centres, corpus striatum, and thalamus opticus. From thence the efferent nerve conveys the impression to the cervical or other ganglia; the ganglion to the carotid ganglion; and this produces its effect upon the internal carotid artery, which, by its capillary ramifications over the grey matter of the convolutions, produces sensation, modified by the nature of the primary stimulus and its conveying medium. The result of this stimulus to the capillaries is the secretion of brain of such a kind as to produce a more or less permanent effect, according to the formation and arrangement of grey substance. In case action is to be the result of sensation, the stimulus may be conveyed from the grey matter of convolutions to the grey matter of spinal cord, which may at once send out its telegraphic message to the muscle by means of the efferent nerve of the anterior root or column.

In further elucidation of this suggestion, let us suppose a stimulus—say the odor of a rose—to be conveyed by the olfactory nerve, through thalamus and corpus to the ganglia. This stimulus causes the distension and contraction of certain capillaries with blood; and the histological change to take place in these capillaries to be called 1,2,3,4. Again, the form and color of the rose, through the optic nerve, to distend certain other capillaries, to be called 5,6,7,8. Again, the undulations of sound produced by the word "rose" to excite the auditory nerve, so as to promote the distension of capillaries 9,10,11,12; and so on through the senses of feeling and tasting. The resultant of all these vascular distentions will be a more or less perfect image of a rose, which will be more or less perfectly reproduced whenever any one or more of the senses is brought under the impression of the rose. Now, let us imagine the olfactory and optic nerves to be stimulated by a rose at the same time that the senses are being excited by the associations of some other object—say "The Old House at Home,"—we know by experience how often a sense under the stimulus of the one idea will reproduce the other. The combinations of this form of mentation may be varied and modified to an unlimited extent.

In explanation of the particular state of the capillaries under the stimulus of ganglionic nerves, we find, by the experiments of Claude Bernard, that when the ganglionic stimulus is applied to the vessels the conversion of arterial to venous blood takes place, and that, as a result, cellular changes of formation and decomposition of effete cells ensue; while in the absence of ganglionic influence the blood passes through the capillaries to the veins in the arterial condition. From the experiments of Donders, this would appear to be the case in brain as well as others tissues of the body.

Of the formation of images or ideas called thought, it must be remembered that we cannot think without words, or at any rate without the reproduction in our minds of some assemblages of circumstances which may be called an image. These images must be either simple, as a rose; or collective, as a tribe of men, an army, or a scene in nature. These images do not arise spontaneously in our minds, but require some stimulus to reproduce them. Thus the smell of a rose may reproduce to our minds a whole garden of roses; the sight of a black man may reproduce to us the idea of a nation of savages; a red coat or a sword may remind us of an army; or the chimney of a single house may remind us of a whole village.

In proof of the effect upon the brain being similar in case of thought to that of actual sight, smell, taste, or feeling, witness the man who faints away at the description of a wound, or the sensation of pain some men experience at the idea of a train passing over any part of the body. If only the image is sufficiently distinctly produced, the sensation will be felt. A proof of this is found in the man who died of cholera after being placed in a bed in which he was told a cholera patient had died, though there really was no truth in the statement, no such patient having been in the bed.

By this process of mentation we shall see reason for the mental phases known as an alcoholic, bilious, hysterical, phthisical, gouty, or nicotised opinion. In support of this vascular theory of mentation we may appeal to the slow rate of conveyance of impressions as compared with electrical effects. (See Barnett's paper in the *Intellectual Observer*, June, 1866.)

The pathological interest of these suggestions will be at once manifest when we come to inquire into the relation of grey matter to the mental history of the patient. I have observed a vast difference in the distinctness of cortical structure in different subjects, but my experience does not enable me to lay down any rule. It is obvious that will, mental perception, sensation, and memory are each separate functions of the mind, and may hereafter by tabulated experience be brought to be associated with certain anatomical appearances. The researches of such men as Turner of Edinburgh will tend to elucidate the question. Again, the pathology of insanity would be much assisted by such investigations, and the surprise at so little morbid change of cerebral structure in certain cases of unsound mind would cease if we were more accustomed to look for the exciting cause in ganglionic centres, rather than in brain itself.

By this vascular theory of mentation it will be seen how the greater part of the operations of the nervous centres is of the nature of a reflex act, while only a small sphere is left for the action of the will, which remarkably coincides with the investigations of all psychologists, from St. Paul and Socrates to Buckle, Conte, Stuart Mill, Goldwin Smith, and Ferrier. Moreover, the theory goes to elucidate the secondary automasis of Carpenter, supposing that capillaries frequently, having received a similar stimulus, are enabled to reproduce, almost without will and on the slightest provocation, a result to which, by their anatomical relation, they would, by a law of frequent use, become fitted to bring about.

There is one other pathological point of interest connected with the action of the sympathetic nerve to which attention may be drawn as a suggestion for further inquiry. There are certain sensations, not of pain, but rather of constriction or dragging, which are associated with affections of organs under the influence of the ganglionic nerves, and as we know that the whole chain of ganglia is connected by innumerable ramifications, we may see reason to account for the following sensations as the result of impressions on certain ganglia, the more so that the stimulation of a ganglionic nerve is not directly productive of pain as is the stimulation of a cerebro-spinal nerve.

To begin with globus hysterics. The ganglia supplying the uterus, ovaries, and genitals may communicate, when irritated, a stimulus to the thyroid ganglion The dragging in the left side associated with leucorrhœa (solar plexus). Distended bowels in hysteria (solar plexus). Oppression of præcordia in fissured anus and hæmorrhoids (solar plexus). To these may be added the sense of constriction experienced after the subcutaneous injection of morphia, to say nothing of the vomiting of pregnancy and the various sympathetic affections in brain, kidney, liver, and enteric disease.

In conclusion it may be suggested that the ganglionic system in connexion with disease has, perhaps, hitherto hardly received that amount of attention which its important position and magnitude would seem to call for.

Lancaster, Sept. 1868.

## CLINICAL NOTES.

## III.

## COMPLEX MORBID CONDITIONS: CEREBRO-SPINAL IRRITATION; HYPERÆSTHESIA; INTERMITTENT SYMPTOMS.

By S. O. Habershon, M.D.,

Physician to Guy's Hospital.

The relation of different kinds of morbid action in the same person constitutes one of the most interesting and important branches of clinical science. Thus a strumous patient may become the subject of syphilis, and the latter malady is more obstinate on account of the presence of the former condition; but to this may be superadded miasmatic poisoning, or rheumatism, or some acute zymotic disease; and in the aggregate of the symptoms—the actual state found at the bedside of the patient—we have to do with the complex resultant of several disturbing conditions.

In many maladies, what may seem at first to be merely the superaddition of one morbid state upon another, is really the further development of the primary ailment in its successive stages. An instance of this complex condition was strikingly shown in a patient lately under my care in Guy's a man of middle age, who had worked at Woolwich, but had more recently suffered privation from loss of employment; he previously had syphilis and ague, and his health had also been deteriorated by intemperate habits. A short time before admission, about ten o'clock at night he fell down on Plumstead-common, apparently in an epileptic fit, and remained on the ground all night till seven in the morning; and this fit was followed by severe bleeding from the nose. He was brought to the hospital in an anæmic state; the face was puffy, the legs slightly anasarcous, the pulse compressible and thrilling; there was no bruit at the heart, the bowels were freely acted on, and the urine was highly albuminous; he stated also that he had recently passed portions of tapeworm. He was ordered the extract of the male fern; but although there was free purgation no tænia was brought away. After a few days, severe and unmistakable gout came on, which was followed a week later by erysipelas of the head and face. The symptoms slowly subsided, and he left the hospital a month later, convalescent.

We rarely observe such a series of ailments in one patient,—syphilis, ague, epilepsy, epistaxis, albuminuria, tapeworm, gout, erysipelas. But it would be quite incorrect to regard them as so many different diseases assailing the same unfortunate man. On the contrary, several were the sequences of one pre-existing morbid state: the syphilis, and ague, and intemperate habits had induced chronic disease, especially affecting the kidney, aggravated by a disposition to gout; but the epilepsy, the epistaxis, and the albuminuria, were merely the effects of that chronic disease; the tapeworm was a coincidence, and the erysipelas was probably due in some degree to the less pure atmosphere of the hospital. Still, it is not usual to find an instance in which so many causes of disease are united, and the one had certainly a modifying influence upon the other. In the following cases there was unusual irritation of the spinal nerves, as shown by hyperæsthesia; but the disease resembled rheumatism, and was intermittent in its character, suggesting miasmatic poisoning. It is not, however, very unfrequent to find intermission in the symptoms of functional disease of the nervous system, and this was, I believe, the especial character of the following cases.

### *Cerebro-spinal Irritation; Hyperæsthesia.*

John B——, aged twenty-eight, by trade a wool warehouseman, was placed under my care on Jan. 8th, 1868. He had suffered from rheumatism three years before, but had had neither syphilis nor ague. His illness commenced nine days previously with rigor and cough; a severe attack of pain half an hour after retiring to rest was followed by a second still more severe. On the following morning he was unable to move, and had dry cough, with severe pain in the left side, in the back, and in the chest. He was confined to his bed, and suffered from dyspnœa, headache, and delirium during the night, with thirst, loss of appetite, and diarrhœa.

On admission he presented the appearance of a muscular man, but with a distressed expression of countenance, evidently from severe pain; the skin was cool, the temperature being only 98°, pulse 78, the respirations 57 per minute. There was a dry cough, and he complained of pain in the left side, in the ankles, knees, shoulders, &c. The pain, however, was not in the joints, or at a fixed part of the side, but on the whole surface of the limbs and side—a general hyperæsthesia. The pain in the chest was so diffused that on gentle percussion at any part he cried out with pain. Any pressure in the course of the spine produced especial expression of distress. There was diminished mobility of the chest, but no dulness on percussion. At the base of the lungs posteriorly there was slight pleuritic cracking, especially on the right side, but it was evident that this pleuritic disease was not the cause of the general hyperæsthesia. The tactile vibration was normal. The sounds of the heart were healthy in character. The urine was clear and abundant, specific gravity 1007, free from albumen, &c. He was ordered ten grains of compound ipecacuanha powder three times a day.

On the following day, the 9th, the pain in the course of the spine extended to head; it was increased whenever the bowels were acted upon. The respiration was 36, the pulse 82, the temperature 98·5°. There was no delirium; the urine as before.

10th.—He was found in the afternoon in a state of free perspiration; the respiration 22; the pulse 75; the left knee was painful, but not swollen; the tongue had a whitish fur. He was ordered quinine in effervescence.

On the 15th, the same afternoon perspiration still persisted, preceded by some chilliness in the morning. The temperature was never above the normal standard, and the urine continued of the same low specific gravity. The patient said that he felt better, and there was much less severe pain and hyperæsthesia. But since the paroxysmal attacks continued, although three grains of quinine were given several times a day, he was ordered to take liquor arsenicalis with decoction of bark. Under this treatment he steadily improved, and left the hospital on Friday, the 18th, well.

The occasional occurrence of acute meningitis of the cerebro-spinal membranes led us at first to suppose that we had such a case before us; for the symptoms were acute and severe, the pain on the surface of the skin intense, the hyperæsthesia was almost general, although especially marked in the course of the spine and about the chest; there was severe headache, and there had been some delirium. The evidence of slight pleuritic affection would not account for the symptoms. Still the lessened temperature of the surface, scarcely that of the normal standard, and the abundant urine of low specific gravity, indicated an ailment of a non-inflammatory or febrile character.

For the same reasons the idea of severe rheumatism was also set aside, although the state of free perspiration in which he was generally found at the time of my visit, and some pain in the knee-joint, favored the idea of a rheumatic affection.

After a few days, it was noticed that a sensation of chilliness in the morning was followed by afternoon perspiration. This condition suggested the question of miasmatic poisoning, or of abscess. Careful examination was made as to any local suppuration about the pelvis, perineum or elsewhere, but without finding any local disease. As to ague, he had resided in Bermondsey, but there was no enlargement of the spleen, and no well-marked paroxysm of intermittent fever could be made out.

If the patient had been a female, the symptoms would have been at once referred to hysteria, or to cerebro-spinal irritation from uterine disturbance. We are compelled to recognise a condition of a similar kind in men; sometimes, it may be in more advanced years, from prostatic or vesical disease, the whole cerebro-spinal system is disturbed, and with some patients the symptoms assume a paroxysmal character, closely resembling intermittent fever.

The patient was ordered at first quinine in effervescence, afterwards decoction of bark, with Fowler's solution; the symptoms at once became less severe, and he steadily improved, leaving the hospital well after a few weeks. Are we, therefore, to consider the ailment as one produced by miasmatic poisoning? Not necessarily so; for although ague is often associated with disturbance of the nervous system, still the symptoms are observed quite independently of such an exciting cause, and as far as our knowledge at present leads us, they must be referred to functional disease of the cerebro-spinal system.

### *Cerebro-spinal Irritation; Hyperæsthesia; Pain in the Calves of both Legs.*

Robert T——, aged thirty-three, a resident of Woolwich, was placed under my care on March 21st, 1868. In his occupation as a shipwright he was accustomed to stand much in the wet; but, excepting an attack of gonorrhœa, with suppurating bubo, he had enjoyed good health till a fortnight ago, when both legs became weak, and severe pain in the calves of the legs came on. The pain increases in severity, so that he could not bear any pressure. Two days before admission he had some pain in the back, but none in the joints, and no symptoms of disease about the heart or lungs, liver or spleen, were present. The tongue was white, the pulse increased in frequency; the temperature was 102°. The bowels were freely open; the urine contained abundant lithates. The countenance was anxious, and the patient was greatly distressed. He stated that he had had rigor, but had experienced neither injury nor fall. He was ordered nitrate of potash mixture, and the legs to be wrapped in cotton wool.

March 24th.—The legs were still very painful; the skin perspiring and clammy. The patient stated that he had a rigor every afternoon, and perspiration every night. There was no enlargement of the spleen, and no local swelling could be found. The tongue was clean, the pulse quiet, the mind clear and collected. Two grains of quinine were ordered three times a day.

On the 26th, there was less pain in the calves but slight swelling of the knee and ankle; the right ankle had on the inner side a circumscribed purpurous patch, and in the centre, loose skin, as from the remains of a bleb.

28th.—The symptoms steadily lessened; and on April 3rd, he was presented convalescent.

In this case the pain in the calves of the legs was very severe, and spinal disease, pyæmia, local suppuration, arteritis, rheumatism, were considered as possible causes. There was no evidence of local disease affecting either the arteries or veins; no indication of local suppuration, or of pyæmia. As to rheumatism, there was some pain in the knee and ankle as well as in the back, but these were scarcely mentioned as compared with the pain in the calves of the legs; the pain was quite on the surface of the skin, and no pressure could be tolerated. There was evidence of some febrile disturbance in the elevated temperature, frequent pulse, and furred tongue. Another fact observable was perspiration every evening, preceded by rigor. The patient had come from Woolwich, but there was no enlargement of the spleen, and he denied ever having had ague. The legs, as far as the knees, were wrapped in cotton wool, and on removing the wool in two or three days, the remains of a large bleb were found on the right ankle, with a purpurous condition of the surrounding skin. Whilst it is to be admitted that in rheumatism the cerebro-spinal system is always more or less affected, and this patient had been exposed to the exciting causes of that disease in standing in damp and wet places, still the condition was not that of ordinary nor facial rheumatism; and I believe the condition was correctly referred to disturbance of the spinal cord. Many instances of organic disease of the spine are regarded in the earlier stages as ordinary rheumatism.

The paroxysmal exacerbations do not seem to oppose such an idea, nor need we necessarily refer the benefit following the use of quinine to a miasmatic type of disease. Intermissions are not limited to fevers produced by marsh poisoning, and quinine is applicable to other states than ague. We must not however, lose sight of the fact that previous exposure to miasmatic poisoning will induce periodicity in subsequent disease, as we observe in bronchitis and pneumonia, in aguish districts, and after intermittent fevers, as if the disease had a quotidian or tertian type; so it may have been in these patients, who were apparently the subjects of functional disease of the spinal cord. The modification of disease by a pre-existent morbid state is a fact so frequently presented, and of so great clinical importance, that we cannot too strongly dwell upon it.

Brook-street, W., September, 1868.

ON A

# CASE OF FIBRO-GRANULAR TUMOUR OF THE UTERUS.

By Alex. E. McRae, M.B., C.M.

H. R——, aged forty-seven, residing about ten miles from Fettercairn, called at 6 P.M. on Sept. 15th, complaining that her "body had come down," which she the meanwhile was supporting with her left hand. She appeared very faint and weak, and her hands, legs, and petticoats were almost covered with blood. On examining her, I found a tumour, about the size of two fists, hard and vascular, protruding from the vagina, and connected by a pedicle of about an inch and a half in length and an inch in thickness, evidently attached to the internal wall of the uterus. The os was dilated to about the size of a half-crown, was rounded and flabby, but distinctly circumventing the pedicle, and about an inch and a half within the vulva. The finger could easily be passed around the os and cervix, between them and the walls of the vagina, and also between them and the pedicle. The pedicle appeared to be attached either to the internal wall of the uterus or to another tumour farther up, equally hard and unyielding, and apparently an enlargement of the pedicle, or else its base of attachment to the uterine walls. She was passing a large quantity of blood; where it came from I could not discover, but it appeared to be coming through the os. When nipped or pressed, it gave no evidence of sensibility. It could not, therefore, be the inverted uterus. Neither could it be prolapsus, being too large, and wanting the os at the apex. It was too hard for a hernia; besides, its course precluded that idea.

She says that for some time—more than a year—she has been conscious of something filling up the vagina, and, when at work, often threatening to become external. Since then her courses, though regular, were painful, and latterly had become very irregular both in time and quantity, there being often discharges of watery matter between the periods, and the pain very severe until she was relieved. These things she attributed to the turn of life, hence sought no advice. Occasionally she has had some difficulty in passing her water. She had an illegitimate child about eighteen or nineteen years ago.

During the day on which she applied to me she had been working at hay-harvest, in a field about two miles from here; took ill about 5 P.M., with bearing-down labour pains, and walked all the way in the above condition, passing a large quantity of blood as she came along. She, thinking it was her womb, wanted the tumour returned; but this was impossible. From the history and appearance I considered it to be a fibrous tumour. Accordingly (not choosing to cut it away, in the absence of a consultation,) I tied a ligature tightly round the pedicle, not for the purpose of arresting hæmorrhage, but that the tumour might slough away. I got her removed to lodgins, ordered her to keep quiet in bed, and cold cloths to be applied to the parts and abdomen.—9 P.M.: Patient has been very sick and vomited a little, but now feels slightly better; has had two stools; tried to pass urine, but only a small quantity came away. There seems to be no water in the bladder. Very little, if any, blood coming away, except when she rises to stool. Pulse 80, steady, but weak and sharp. Complains of some occasional pains in the belly and back, resembling labour pains. The os has contracted firmly on the pedicle, and, instead of being thick and flabby, feels sharp and tight. The finger, however, can be passed within it, and feels the hard and rounded thickening of the root of the pedicle; but the pedicle being so short, rendering digital examination almost impossible, and fearing to rupture the os, I could not make out its attachment to the uterine walls. Ordered her still to continue the cold applications, and to keep the horizontal position, as she had fainted both times at stool.

Sept. 16th.—9 A.M.: Passed water copiously during the night. Pulse 70, steady but sharp. Bowels opened once; fainted. Skin hot and dry; tongue brown. Tumour dark-livid and cold. The external parts are considerably dilated, and the second tumour is presenting and filling up the external orifice. It looks quite healthy, however, and is sensitive to the touch; supposed to be the inverting uterus. Bleeding entirely stopped. Had sickened and fainted on sitting up. Some tenderness over abdomen. Ordered a dose of castor oil, and warm cloths assiduously applied to the belly.—11.30 P.M.: Drew off about a pint of urine. Pulse 75, slightly irregular and intermittent; skin somewhat moist; no tenderness about the abdomen; no bleeding. Cannot make out the os now, the orifice being so blocked up. Has eaten nothing all day; no appetite; tongue white. Tightened the ligature.

17th.—9 A.M.: Has passed a fair night; feels little or no pain, but faints if she attempts to rise. —11.30 A.M.: In consultation with Dr. Fettes of Laurencekirk, we decided to remove the tumour, which was now becoming very offensive. Accordingly I cut across the pedicle at the ligature, and on being let go, the inverted uterus, with the pedicle, rebounded suddenly with a "chuck." Little bleeding occurred. In a short time the os closed to the size of a half-crown, and the stump of the pedicle could be felt as a hard eminence on the internal and anterior surface of the cervix. A jet of cold water was applied to the bleeding surface, and the uterus and vagina were carefully washed out. On sitting up to get her bed arranged, she fainted.

For the next three days she continued in a fainting state, with a weak, irregular, and intermittent pulse, and a very fetid discharge from the vagina. She was kept up with liberal supplies of beef-tea and brandy.

21st.—9 A.M.: Has had a rigor; pulse 90, weak; slightly feverish; severe cough. Complains of intense pain in left lumbar region, which interferes with her breathing; tender on pressure. Bowels not opened for three days. Ordered a dose of castor oil, sedative cough mixture, and hot applications to the side.—11 P.M.: Pulse 80; pain much less; breathing and cough easier; bowels opened once.

22nd.—Passed a better night; cough less troublesome; little or no pain in side; still feels faint; discharge almost stopped. To continue the beef-tea and brandy, and to have liberal supplies of milk.

30th.—To-day patient wishes to go home. Feels greatly improved; has slight vertigo, but no faintness. On examination I find that the anterior edge of the os is thickened and hard, and a hard eminence can be felt within and also without on the cervix; the posterior is thin and sharp. The finger can pass about an inch or more into the uterus, but must be directed well backwards, so as to pass over the eminence, which seems to be the remains of the pedicle.

The tumour is about the size of an ox's heart, and weighs 24 oz.; it is very hard, and somewhat gritty to the cut. Under the microscope it is seen to be composed of a fibrous matrix, the fibres being arranged in concentric layers, forming nests, as it were, the fibres of one nest passing into those of the adjacent, and enclosing innumerable amorphous granules, about 1–7000 in. in diameter.

The woman has continued well, and able to work as before. The os is natural, and she has been regular for the last three months.

Fettercairn, N.B., Sept., 1868.

# A CASE OF EXCISION OF THE WRIST BY LISTER'S METHOD.

By J. W. Hulke, F.R.S.,

Assistant-Surgeon to the Middlesex and Royal London Ophthalmic Hospitals.

An impression that Lister's excellent method of excising the wrist has not met with the attention it deserves, and a desire to bring it under the notice of the profession, have led me to communicate a short account of a case in which I adopted it in May, 1866. As the method has been described at length by Mr. Lister in The Lancet, I would refer anyone who desires full particulars respecting it to that source. It differs from all other methods which I have seen practised—where the carpus was excised through lateral incisions, or through a cut transversely across the back of the wrist—by its allowing the relatively facile removal of the carpal bones, together with as much of the articular ends of the radius and ulna and of the metacarpal bones as may be diseased, through incisions which are so ingeniously planned as not to sever any of the flexor or extensor tendons of the fingers, and yet permit the bones to be brought so clearly into view that the extent of the disease can be exactly ascertained. In a word, Lister's method of excising the wrist has the great merit of being an exact operation, and one which attains the desired end with the least amount of injury to other parts.

A groom, aged twenty-three, was admitted into Clayton ward, Middlesex Hospital, March 16th, 1866, with disease of the left wrist of eight months' duration, for which he had long been under treatment as an out-patient. The wrist was much swollen, its natural outlines being quite masked; and it was very painful, often starting at night, and greatly breaking his rest. He could slightly flex and extend it, but the attempt to do so gave him great suffering. There was a puffy, obscurely fluctuating swelling, covered by slightly reddened skin at the back of the joint. He had for some time been losing flesh, and had a slight cough; but the signs of pulmonary phthisis were absent, and his emaciation was probably mainly due to want of enough food, for he had been long out of work.

The hand and forearm were put in a glue bandage, which immovably fixed the wrist, and this was painted with iodine through an opening left for the purpose at the back of the joint. He was ordered tonics, full diet, and to keep as much out of doors as the weather allowed.

In the course of a few days the pain abated, but an abscess broke at the back of the wrist, and the state of the joint gradually became more hopeless. In May another abscess formed over the second metacarpal bone; and at the end of this month, as his health had begun to suffer seriously, I excised all the carpal bones, with the articular surfaces of the radius and ulna and those of the proximal ends of the metacarpal bones, following exactly Lister's method. It was necessarily a rather tedious proceeding, but the tourniquet made it a perfectly bloodless one; and by first breaking down (as Lister advises) all the inflammatory stiffness by free movement of the parts, the later steps were rendered much less difficult than I had anticipated.

The after-treatment was pursued exactly on Lister's plan. Passive movements of the fingers were daily made, and the patient was soon able to move them himself with a freedom and painlessness which surprised me. The swelling subsided, the discharge from the incisions lessened, he gained flesh, and in July I sent him to Seaford. His hand became stronger, but the wounds did not soundly close; and in November he retuned, with fresh swelling, a sinus on the back of the wrist, and another at the ulnar side of the metacarpus. This I laid open, and found the surfaces of the radius and ulna covered by healthy soft tissues, but the ends of the four metacarpal bones were rough and bare. These were removed, and the wound was washed with a solution of chloride of zinc. In December the sinus and the incision discharged very little; his wrist was stronger, and he had a relatively free use of the fingers and thumb. He again went to Seaford for a month. After the last operation the wrist rapidly consolidated and gained strength, so that he became able to undertake light work; the sinuses did not, however, quite heal for another month. In June of last year (1867) he became a nobleman's coachman. A small leather splint, reaching from the palm a few inches up the forearm, gave his wrist all the support it needed. It was entirely concealed by a glove, and no one who did not critically compare the two wrists would have observed his defect. He had good flexion and extension of the fingers and thumb, could readily oppose the thumb and forefinger, and had pronation and supination through a slight range. He told me that he could do his work well; his wrist was quite painless; and I saw him several times afterwards driving a brougham.

Old Burlington-street, Oct., 1868.

### REPORT OF A

# CASE OF FOREIGN BODY EMBEDDED IN THE LIVER, PROVING FATAL.

By Wasdale Watson, M.R.C.S. Eng.,

Surgeon to St. Marylebone Provident Dispensary.

Sophie M. J——, aged eleven years and a half had complained for a year and a half of pain in the epigastric region. She had been an in-patient of the French Hospital for seven weeks up to April 30th, and for some months before an out-patient at the Children's Hospital, Great Ormond-street. For about a year she had been subject to severe epileptiform convulsions, but previous to the appearance of the fits a doubtful diagnosis was made by several medical men, the cause of the pain complained of remaining persistently obscure. Two separate notes were made of her having passed blood by the bowels in November and December, 1867. She menstruated for the first time in April last.

On May 17th, at half-past twelve P.M., I was called to her, with a message that she had been better than usual during the day, had gone to bed tired from a walk, and had just then been found lying on the floor breathing heavily, having fallen out of bed. On my arrival, in about ten minutes I found her replaced in bed, but quite dead, with evidence of an epileptic seizure having taken place—mucus about the mouth, and the tongue firmly grasped between the teeth. There not being the slightest indication of animation, respiration as well as the heart's action having ceased I did not attempt resuscitation.

From the fact of her having fallen out of bed the coroner decided on holding an inquiry in case of any neglect, and owing to that decision I am enabled to report a very interesting circumstance brought to light at the post-mortem examination. On account of such clear evidence of epilepsy, a question arose as to whether an inquest should be held, and but for the fall one would not have taken place, as no less than three surgeons, including myself, were ready to certify that death had arisen from epilepsy. Therefore the autopsy was not made until forty-three hours after death.

The body was well nourished; no external mark of violence nor indication of fall; rigor mortis persistent more than ordinarily.—Head: Brain and membranes slightly changed by commencing decomposition; generally congested, and a small quantitiy of effused serum.—Chest: Fluid in both pleuræ, but I think chiefly post mortem; an old adhesion of left lung to pericardium; lungs healthy. Heart normal; right side empty, left full—Abdomen: Spleen slightly enlarged. Liver natural and healthy, but on raising it I found it adherent to the stomach, towards the right side, with even careful manipulation it gave way, and something pricked the index-finger of my left hand. On further search I discovered a pin, an inch and a half long, perforating the stomach; and it was imbedded for at least half an inch in the substance of the liver, but in the accidental separation of the adhesion it had been withdrawn, A discolored patch, the size of a shilling, showed where the pin had pricked the coat of the stomach several times before the perforation had occurred, the aperture in which, after separation from the liver, would have just admitted a crow-quill. Fortunately no particles of food were able to escape into the peritoneal cavity.

*Remarks.*—This case is interesting in one or two points. First, if no inquest had been held we should have lost the account altogether. Then again, when under treatment at the Children's Hospital in November, December, and January last, it was remarked that the pain the child complained of "possibly arose from tying her petticoat strings too tightly," and a note to that effect is appended to her hospital paper; but loosening the strings did not remove the pain. My own theory is, that the pin was swallowed about two years ago, and some time after it set up irritation by pricking and afterwards perforating the stomach and liver, the bloody stools indicating about the time. Then (being very near the sympathetic centre), by reflex action occurring, the fits were produced, which, as I have stated, terminated fatally.

## FRACTURE OF THE FOREARM.

By J. T. Gabriel, Esq.,

Surgeon Royal Navy.

The following case is, I think, rather an exceptional one in its very favorable progress and result:—

In March, 1867, a seaman, aged twenty-three, powerfully made, and weighing about 12 st., serving in her Majesty's ship *Pearl*, at Hong Kong, fell from an awning that was spread over the deck at a height of eight feet. His weight carried away the fastenings of the awning, and he fell in a sprawling position upon the deck, his right arm being extended, and receiving the brunt of the fall through the hand. On inspection, I found a large swelling upon the posterior aspect of the wrist, which, on manipulation, proved to consist of fragments of the radius and ulna. Seven pieces of the radius could be distinctly felt, occupying the position of its lowest extremity, and involving its articular surface. Two fragments of the ulna were detected within the space occupied by the pronator quadratus muscle. The patient was in extreme agony. I immediately made cautious and gentle extension, grasping the hand, and steadying the arm; and, to my astonishment, all the fragments appeared to fall *in situ*, restoring the natural outline of the limb. Splints were then lightly applied; but sufficiently firm to prevent displacement. The patient experienced instant cessation of pain. I had great apprehension of inflammation occurring to a grave degree; but the patient expressed himself so relieved after the reduction of the fracture, that I determined to wait and watch. Happily the state of ease continued, so that I did not interfere with the splints till the tenth day, when on removing them, I found everything in position. *The several fragments were very clearly made out*, and there was only a very moderate amount of swelling at the seat of the injury. The splints, anterior and posterior, were reapplied, this time quite firmly, with the intention of their not being disturbed for some weeks. The hand was kept bent in the semi-prone and supine position, and the entire limb secured to the chest. The patient's health continued good, and he was allowed extra diet, with wine and eggs.

At the expiration of six weeks the limb was again examined, and a great deal of union had taken place; one or two points of motion only could be detected. But my attention was called at this time to the position of the os magnum, where the patient complained of much tenderness; and upon pressing with the point of my thumb, I distinctly felt crepitus, and diagnosed a fracture of the os magnum, extending transversely across its centre. The solution of continuity in the bone was unmistakable. The limb was now carefully bandaged; and afterwards a second bandage, saturated with a paste made of a solution of gum and finely triturated chalk, was applied. This dried quickly, and formed a hard, snugly-fitting case. At the end of the third month the cure was complete: the shape of the limb perfect; the actions of supination and pronation smooth and free; and the only restriction of motion, and this of small degree, was noticed in extenso-flexion, and which I ascribed to the injury that had been sustained by the os magnum, for upon pressure being applied at its site, the patient still experienced some tenderness.

From the long confinement of the limb, the hand had become small and delicate, and its muscular strength much diminished; but the symmetry of the limb was unaffected. The patient was invalided in order that he might have light duty in harbor service at home, and so be placed under the most favorable circumstances for the recovery of his strength.

**Spring-gardens, Oct. 1868.**

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## ON DIAGNOSIS, IN THE FEMALE, BY THE HAND INTRODUCED INTO THE RECTUM.

By C. F. **Maunder**,

**Surgeon to the London Hospital.**

In a recent number of The Lancet I suggested as a means of determining the precise seat and nature of obstruction high up in the rectum, the introduction of the hand, obstetric fashion, into that viscus; and related a case in which the examination so conducted in a female nearly seventy years of age led to an accurate diagnosis, and was immediately followed by colotomy, performed to relieve complete intestinal obstruction. That patient now, six months from the date of operation, is in fair health.

A few days since my colleague, Dr. Head, requested my opinion in the case of a young woman with atresia vaginæ. With this exception the external signs of her sex were sufficiently developed. We were anxious to determine the presence or absence of a uterus, as well as the possibility of reaching that organ by means of an artificial vagina. The finger in the rectum enabled us to detect the left ovary lying low down in the pelvis, and on a higher level than this the digit just reached a firm body to the right of the mesian line, which might possibly be the cervix uteri. It was determined to cut for this in the natural site of the vagina. Having made an incision in the mesian line between the fourchette and the meatus urinarius (where was a depression), I tunneled my way with my forefinger upwards in the direction of the supposed os uteri. A passage thus made, the length of my finger allowed me to feel something, but still at a distance from the point of the finger, and not in the mesian line. I was unwilling to cut further. At this stage Dr. Head suggested that I should resort to the mode of examination which he had heard I had adopted, and as is above mentioned. I accordingly (the back of the fingers and hand being well oiled) introduced the hand into the rectum, and was enabled to determine the absence of the uterus, but the presence of the right ovary, and it was this organ which we had suspected might possibly have been the cervix uteri. With the left hand in the rectum, and the right upon the anterior abdominal wall, I was enabled to explore the pelvis with facility.

In cases in which it is of vast importance to determine with accuracy, as it certainly was here (question of marriageability), the state of the pelvic organs, whether in reference to congenital malformation or to morbid growths (tumours &c.), the hand introduced will avail much.

Should the sphincter be ruptured, as it was slightly in the above case, incontinence of fæces for a short time is a matter of little moment when compared with the great importance, in certain instances, of arriving at a positive diagnosis.

*Note.*—The patient being thoroughly under the influence of chloroform, the hand should be introduced with the backs of the fingers and the knuckles towards the hollow of the sacrum, up which it will glide as soon as the knuckles have passed the sphincter, either by dilating or rupturing it.

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## ON CARBOLIC ACID COLLYRIA IN STRUMOUS OPHTHALMIA.

By **Edward** C. **Markey**, Assistant-Surgeon.

Of all diseases of children we meet with in India there are few more troublesome as regards treatment than strumous ophthalmia, more particularly towards the end of the hot season, when the general health has become seriously impaired, and when, in addition, glandular enlargements exist. I may here state that the heat this season has been greater than for years past.

I have lately had two children, aged two and four years respectively, under my care for strumous ophthalmia. Their general health had become much impaired from residence in the plains during the hot season, added to which the cervical glands were considerably enlarged. The eye affection proved most rebellious to treatment both local and general. I had, in fact, given up all hope of curing them in the plains.

In looking over a recent number of The Lancet I observed that Sir H. Thompson, in his admirable lectures "On Diseases of the Urinary Organs," recommended an injection of carbolic acid in certain cases of chronic cystitis. It struck me that a lotion somewhat similar might prove beneficial in the cases of ophthalmia, and I prescribed the following as a collyrium:—Carbolic acid, one drop; glycerine, five drops; rose water, one ounce. The result proved most satisfactory. I am not aware that any reference is made to carbolic acid collyria in books. Its well-known antiseptic properties would, I think, be sufficient inducement to give it a trial, more particularly in epidemic forms of the disease, and I therefore beg to recommend it to the notice of the profession.

**Shajehampore, N.W.P., India, 29th July, 1868.**

# A Mirror
## OF THE PRACTICE OF
## MEDICINE AND SURGERY
## IN THE
## HOSPITALS OF LONDON.

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Nulla autem est alia procerto noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

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## ROYAL FREE HOSPITAL.

### A DESCRIPTION OF SOME RAILWAY INJURIES NECESSITATING PRIMARY AMPUTATION; RESULTS.

(Under the care of Mr. JOHN D. HILL.)

IN his clinical experience of railway injuries, Mr. Hill finds that, as a rule, they differ from many other lesions with respect to the amount of shock and general concussion of the body, and in their local severity and extent. Perhaps the former, he thinks, may be explained by the kind of force or power which gives rise to such accidents; and, assuming this to be the case, it will be easily understood how the range of steam pressure, or, in other words, the speed of the locomotive, regulates the degree of shock and general concussion of the body; while the latter, which is most frequently produced by the wheel of the train, is in most cases severe, whatever be the speed. It may therefore be premised that shock and general concussion, when associated with local injury, will materially influence the issue of all cases in which surgical aid is indicated, and (except where uncontrollable hæmorrhage arises) will to a great extent guide the surgeon in selecting the most favorable time for operative assistance. Of the following cases, in one instance, shock and general concussion were so severe that the patient remained in almost a lifeless state for several hours. In another instance shock was comparatively slight. Again, in a third general concussion was so great that death rapidly ensued, and when the body was inspected, the capillary vessels were found ruptured, not only in all the internal organs, but throughout the muscular system; and yet in each case the local injuries were very severe. Now the wheel of the locomotive has a projecting flange, which overlaps the inner border of the rail. This is a terribly destructive agent, for in crossing the limb it not only smashes it, but often tears muscles from their fixed points or detaches their tendons. Sometimes it lacerates or ruptures the main arteries and veins, and (more rarely) the nerves at a distant part of the affected limb. Beyond the actual wound communicating with the bone, the integument is occasionally separated, more or less, from the deep fascia by effused blood, or is otherwise lacerated and bruised. Lastly, the periosteum and medullary membrane are sometimes damaged to such an extent that necrosis ensues after amputation. Now, as to complications, they may arise from a variety of circumstances, but independent of atmospheric, zymotic, idiopathic, or accidental causes. The cases under consideration will exemplify those depending chiefly upon the direct consequences of general and local injury.

The first case represents general concussion, extreme shock, and extensive local injuries, followed by complications chiefly of a local origin.

CASE 1. *Compound comminuted fracture of tibiæ and fibulæ; (primary) amputation of the right thigh; trismus arrested by (secondary) amputation of left leg; recovery.*—Charles S——, aged eighteen, by occupation an engine foreman, of healthy constitution, was admitted into the Royal Free Hospital on August 20th, 1867, at 6 P.M., having been knocked down and run over by a train in rapid motion. On admission, he was found deathly cold, pulseless, and blanched; the respirations were scarcely perceptible; pupils dilated; skin covered with cold sweat; and he could hardly be roused.

*Examination of injured limb.*—Right leg: From the lower fourth of the leg to the upper border of the patella there was a wound eleven inches in extent; integument in greater part detached and hanging loosely to the posterior aspect of the limb; muscles lacerated; gastrocnemius, soleus, and plantaris torn from their origin; tibialis anticus ruptured; vessels and nerves (anterior and posterior tibial and peroneal arteries and veins) severed. The bones were broken into small pieces, and begrimed with dirt. From the subcutaneous surface of the upper fragment of the tibia the periosteum was torn off towards the knee.—Left leg: A wound, three inches in extent, communicated with a comminution of the tibia and fibula in their middle third. The soft parts were boggy and emphysematous as far as the knee; integuments above the knee separated from the fascia by effused blood; tibialis anticus torn across; extensor longus digitorum tendon detached from muscle; main vessels and nerves intact.

*Treatment and progress.*—Having guarded against hæmorrhage by securing the vessels in the right leg, Mr. Hill decided to wait for reaction. The shattered limbs were placed upon two well-padded splints, on a plane inclined from heel to hip, and stimulants freely given, followed by an opiate at night.

Aug. 21st.—Although he passed a restless night, fair reaction had set in by 9 A.M. Pulse 100, soft and compressible skin warm and moist; tongue coated; respiration 25 per minute; pupils act; bowels open. Has passed water; the urine scanty, and loaded with purpurates and lithates. His condition now being more favorable, chloroform was administered, and Mr. Hill amputated the right thigh in its lower fourth by the circular method. The integument when divided was found bruised and somewhat detached from the deep fascia by gelatinous lymph and clotted blood, and small clots were here and there scattered throughout the muscular tissue. As the temperature of the left leg was good, and the vessels intact, an attempt was made to save it.

23rd.—A good deal of reactionary fever has now set in; the pulse has risen to 135, is small and compressible; respiration 40 per minute; face flushed; urine very scanty, and high-colored, and of specific gravity 1035; bowels confined; skin hot and dry; tongue coated; and he complained of headache, thirst, and a sensation of sickness. Nevertheless, there is some primary union in the stump. Left leg is freely suppurating: to be dressed every four hours. Ordered half an ounce of castor oil immediately. Diet—beef tea, milk, eggs, and wine, twelve ounces daily.

25th.—Acute cellular inflammation has now attacked the left leg. Fever abated; bowels well relieved; pulse 110; respiration 28. Stump looks healthy, although it shows a tendency to retraction. Prescribed mixture of quinine with iron, one ounce thrice a day.

27th.—Above and below the knee several abscesses have formed. Pulse 108, stronger; general condition improved; abscesses opened, and poulticed with linseed meal.

31st.—Pulse 110; respiration 30. The left facial muscles have become tetanic, and the risus sardonicus is well marked. In a few hours the left masseter, temporal, sterno-mastoid, and constrictor muscles of the pharynx became rigidly contracted, so that he was unable to open his mouth without the greatest difficulty. Opiates were freely given, combined with quinine and tincture of bark, and for the few following days food was administered partly by the rectum and partly by the mouth, through a gap caused by the loss of a front-tooth.

Sept. 2nd.—This morning a large quantity of pus was let out from the seat of fracture in the left leg. The bone is extensively denuded of periosteum.

5th (fifteenth day after operation.)—All ligatures have now separated from the stump. Wound is slowly healing around bone, which protrudes and is necrosed. Wound in left leg is discharging profusely.

8th.—Trismus is persistent, and from the combined influence of nervous irritation, excessive discharge, and inability to take sufficient sustenance, his health is declining. Therefore it was decided to amputate the left leg below the knee. Chloroform having been administered, Mr. Hill commenced the operation by making a long external skin-flap, and a short internal one, in order to secure sufficient covering for the bone, which was sawn through just below the tubercle of the tibia. The tissues were matted together, and very unyielding; dense bands of tissue connected the muscular fascia with the integument. The muscles were pale and atrophied, and the vessels small and contracted. After completing the operation, with a free incision on the outer surface of the opposite stump (which was conical) Mr. Hill laid bare the bone, and sawed off three inches. In eight hours after the operation all symptoms of trismus had passed away, and he slept tolerably well during the night. From this date his progress was slow, but on the whole satisfactory. Retraction of the tissues, however, occurred to a marked extent in both stumps, followed by necrosis.

At the end of six weeks, two inches and a half of bone further exfoliated from the right stump, and after this the wound gradually closed, leaving the stump with the appearance of an amputation having been performed in the upper third of the thigh.

The ligatures separated from the left stump on the fourteenth day, and several portions of bone were cast off during the healing process; subsequently, however, sloughing of the flaps and effusion into the knee-joint ensued, which somewhat protracted his recovery. He was discharged in good health, and with very fair stumps, on January 24th, 1868.

Mr. Hill made a few remarks as to the surgical treatment and progress of this case. The necessity for primary amputation of the right thigh was unquestionable, and by delaying the operation for reaction, probably the patient was afforded the best chance of survival. Now trismus was induced and kept up through mechanical irritation of the nerves by the necrosed bone,—hence its subsidence when the limb had been removed. Retraction of the stumps and necrosis were, he said, possibly due to the injury which the muscles, periosteum, and medullary membrane had respectively sustained; and lastly, it was more than probable that the general concussion of the body, and shock to the nervous and vascular systems, had rendered the reparative process slow, through the enfeebled processes of secretion and assimilation.

The next case illustrates severe and extensive local injuries attended with a minor degree of shock.

CASE 2. *Compound comminuted fracture of left tibia, fibula radius, and ulna; primary amputation of thigh, and upper arm; recovery.*—Thomas G——, aged thirty-three, by occupation a railway porter, of previous good health, was admitted into the hospital on August 22nd, 1867, at 1 A.M., having been knocked down and run over by a train in slow motion. He was quite sensible, gave a clear account of the accident, and the shock was slight. His left forearm was smashed in its upper third, and the left leg below the knee; and in both instances the integument was injured higher up. The remains of the shattered extremities were attached only by shreds of skin and muscle. The vessels and nerves were torn across, and the bones comminuted.

Mr. Hill forthwith performed primary amputation of both members immediately above the elbow and knee-joints respectively: in the case of the thigh, by the antero-posterior flap; and in that of the arm, by the oval method. In both cases he secured sufficient integument to saw through the cancellated structure of the bones. There was very little constitutional disturbance after the operations; and, except a little sloughing in both stumps where the integument had been bruised, the man had not a bad symptom. The brachial ligature separated on the thirteenth, and the popliteal on the seventeenth day. By granulation the stumps slowly healed, and he was discharged in good health, on the 21st of November.

The injured extremities were literally smashed, and little more could be said about them. But one fact as to the vessels deserves notice; in both instances the arteries and veins were torn across, and, on tracing them out and opening them, plugs of coagulum were seen to extend from the proximal end of the ruptured tibial to the popliteal artery, and from the radial and ulnar to the brachial artery. The veins also were plugged in a minor degree.

The treatment consisted in a generous diet, with ten ounces of wine and two pints of stout daily.

The points of interest may now be briefly summed up. The slight amount of shock and general concussion, as compared with the severe nature of the injuries, may be attributed to the slow speed at which the train was moving at the time of the accident. In this, as in all other cases, it was decidedly the best surgery to diminish further shock by amputating as near to the injured extremities as possible, and rather to exercise a little ingenuity in getting integument for a covering, for the advantage of sawing through the cancellated structure of the bones; thus the danger incidental to opening the medullary canal was avoided. As in the preceding case, the integument was found injured higher up than the external appearances at first indicated.

CASE 3. *Compound fracture of left leg; amputation below the knee; recovery.*—John G——, aged thirty-one, a railway porter of good constitution, was admitted into the hospital on Oct. 15th 1867, having been knocked down and run over by a train in rapid motion. When admitted, he was much collapsed, the pulse and breathing being hardly perceptible, the countenance pale, and the surface of the body covered with cold sweat.

*Examination of the limb.*—The integument over both malleoli, and extending towards the knee, was lacerated, and blood effused between this structure and the muscles halfway up the leg. The deep fascia was laid open, extensor tendons torn from their muscular attachment, and anterior tibial vessels and nerve ruptured in the middle third of the leg. The tip of the internal malleolus was broken off, and two inches above the external malleolus the fibula was cracked across. The ankle-joint was laid open, and the astragalus split vertically.

*Treatment and progress.*—Stimulants were given freely, and in the course of an hour, by which time he had rallied, Mr. Hill performed amputation below the knee by the circular method. At the anterior and external part of the circle the integument was found bruised, and slightly detached from the deep fascia by clotted blood; the precaution was, however, taken to secure plenty of covering. Pretty sharp reaction set in during the three following days, and by the fifth day the respiratory and circulating systems had regained their equilibrium. The last ligature separated on the fifteenth day, and the stump healed partly by adhesion and partly by granulation. He progressed without a bad symptom (except that a small portion of the bruised integument lost its vitality and was cast off), and was discharged in good health on Nov. 30th, 1867. The stump at that time was quite sound; there had been no retraction, and the cicatrix was three inches in length.

*Remarks.*—Here again the train was travelling at a rapid speed; hence the coexistence of severe shock with local injury. With respect to the injuries, it may be observed that the anterior tibial vessels and nerve were ruptured in the middle third of the leg, and that the extensor tendons were torn from their muscular attachments. The yielding integument was detached from the deep fascia, even as high as the line of amputation. These circumstances will be explained by the shape of the wheel, and the comparative elasticity of the several structures.

The next case illustrates severe shock and general concussion, with extensive capillary rupture and local injury.

CASE 4. *Compound fracture of tibia and fibula; amputation of thigh; death; autopsy.*—James F——, aged thirty-eight, a railway porter, of healthy constitution, was admitted into the hospital on Sept. 5th, 1867, having been knocked down and run over by a train in rapid motion. On admission, he was very much collapsed, and was said to have lost a good deal of blood. The soft parts were much damaged, the integument being detached as high as the popliteal space; the deep fascia was extensively lacerated; the muscles were ruptured, and the bones broken in their upper third; the main vessels were torn across in the middle third of the leg; and there was oozing from the soft parts. As the hæmorrhage was general and the limb considerably swollen above the wound, when the patient had somewhat rallied, Mr. Hill amputated the thigh in its middle third by the antero-posterior flap method. The patient, however, showed no symptoms of decided reaction, and died Sept. 6th, thirty hours after the accident.

*Autopsy.*—The internal organs were generally healthy. In the muscles of the chest, abdomen, and head, numerous vascular points were observed about the size of a pin's head, and here and there minute clots, somewhat larger than these points. In the brain and muscular substance of the heart the same vascular points thickly studded both structures. The cavities of the heart contained semi-fluid black blood. The lungs, liver, spleen, and kidneys presented the same appearance as that observed in the brain and heart.

*Examination of limb after amputation.*—The popliteal artery and vein were torn across about the middle of the space, which was filled with clot. The gastrocnemius and plantaris muscles were dragged from their origin; and the internal popliteal nerve was ruptured at the apex of the triangle.

*Remarks.*—Now let the points in this case be briefly considered. Shock and general concussion consequent upon the rapid speed of the train were well exemplified by the symptoms during life, and subsequently by the post-mortem appearances. The local injuries were, as in the former cases, very severe; but the special lesion of the arteries required immediate consideration. Firstly, the vessels were torn across in the middle third of the leg, and secondly, there was rupture of the popliteal vessels. Here, then, was a twofold necessity for operative assistance. In addition to these injuries, the flexor muscles were dragged from their origin, and the internal popliteal nerve was broken across at the summit of the popliteal space—in themselves facts representing the violence which the soft parts had sustained beyond the spot where the destructive agent actually crossed the limb. The post-mortem appearances of general capillary rupture throughout the internal organs and the general muscular tissue are very instructive in regard to the extreme concussion which the body had incurred.

The last case illustrates general concussion, shock, and local injuries, followed by complications, the result of injury to the main vessels.

CASE 5. *Compound dislocation of both ankle-joints, with extreme injury to the soft parts; primary amputation of both legs; acute gangrene; death; autopsy.*—John W——, aged thirty-three, a railway guard, of good constitution, was admitted into the hospital July 17th, 1867, having been knocked down and run over by a train in rapid motion. When seen a few minutes after the accident he was suffering from extreme shock, but in the course of an hour the return of warmth to the surface of the body, the increase of volume and frequency of the pulse, and the arterial hæmorrhage from the injured extremites, gave evidence of reaction. His feet were both smashed and dislocated at the ankle, on the right side inwards and on the left outwards, in either case hanging by shreds of skin. The integument was torn away several inches above the joints, the tendons were detached, and the vessels and nerves ruptured. Under chloroform, Mr. Hill performed primary amputation in the lower third of both legs, by the circular method on the right, and by the posterior flap on the left, regulating the incision by the amount of sound integument to be obtained.

July 18th.—Has passed a fair night; reaction is good.

20th.—Pulse 120; respiration 40; delirious; acute gangrene has attacked both stumps; blebs have formed as high as the knee; both limbs much swollen and tense; flaps black and gangrenous.

21st.—Delirium abated; gangrene is rapidly extending towards the trunk. Died at 12 o'clock.

*Treatment.*—Locally, free and deep incisions were carried through the soft parts to relieve tension; all the sutures were removed. The limbs were maintained in an elevated position, and encircled in cotton wool. Bark and ammonia in full doses .were prescribed with brandy, eggs, beef-tea, &c., by mouth and rectum.

*Autopsy sixteen hours after death.*—Muscles of the head, chest, abdomen, and lower extremities studded with vascular points. The same appearances were observed in the brain, spinal cord, muscular tissue of the heart, liver, kidneys, and coats of the bladder. The meninges were very opaque, and separated from the brain by subarachnoid fluid; the cavities of the heart were filled with decolorised clots, and the lungs were congested. The internal organs were otherwise healthy in structure.

*Femoral arteries.*—These vessels were found lacerated in Hunter's canal—the right artery in the upper part, the left in the lower part of the canal,—the rents respectively extended through their internal and middle coats in a transverse direction, and involved a little more than one-half their calibre. The space between the broken edges was occupied by plastic lymph of firm consistence; and, on removing the arteries from their beds, they were found to be pretty firmly adherent to the muscles by lymph, which had been thrown out external to their outer coats. These were intact. On opening the vessels, an embolus was traced downwards to the extremities and upwards into the common iliacs. The veins, also, were plugged in the same situation; but the plugs were much softer, more irregular in shape, and not quite decolorised.

*Remarks.*—Now in this case the man was knocked down and run over by a train in rapid motion. Hence, excessive, shock, great general concussion, and local injuries; further, there was laceration of the arteries at a distant part of the limbs, which was not detected during life owing to the absence of local symptoms, and the free supply of blood to the extremities, as seen at the operation. When, however, reaction set in, and the vessels were called into increased play, plugging occurred probably at the seat of arterial injury, followed by gangrene and death. It may seem remarkable that no local signs were developed to indicate arterial injury; but perhaps the explanation is, that when the breach in the arteries occurred, extreme shock arrested the arterial flow, or at any rate lessened it so considerably as to allow of the formation of a plug. This, with the integrity of the external coats, may have prevented yielding to any extent. Further, the facts of the breach being situated at the outer part of the vessels (which were so deeply imbedded in muscle) would render it doubtful, if there had been any slight impulse or tumefaction, whether it would have been detected during life; at any rate, the post-mortem evidence would lead to this conclusion. The effects of general concussion here again were well marked by capillary rupture in nearly all the organs of the body. Lastly, it may be asked why nothing has been said about primary hæmorrhage after the receipt of such severe injuries. Now it is well known that shock in many cases prevents it; and in others the manner in which the arteries are torn or dragged out causes retraction of their inner and middle coats, and thus the vessels become sealed up; but where the injuries are chiefly local and there is little shock, hæmorrhage does occasionally take place. In the majority of such instances the railway officials have sufficient sagacity to compress the limb at the seat of injury by means of a handkerchief, a piece of wood, buckle, or strap; and thus in many cases an inconsiderable quantity of blood is lost previous to the patient's admission into the hospital.

## GUY'S HOSPITAL.

### CASES OF OPERATIONS ON THE FOOT.

(Under the care of Mr. John Birkett.)

The following cases offer good illustrations of the too frequent conditions of the patients treated in the metropolitan hospitals. Whether admitted on account of injuries or of disease, too many of them have damaged or deteriorated powers of repair, due to their misfortunes or irregular habits. It requires, therefore, a long time to enable them to obtain the advantages to be derived from cleanliness, good regimen, regularity, and assiduous care before healthy reparative actions can exert their influence.

The first is the case of a man whose constitutional powers were probably never very good, and who had been an inmate of one of the workhouses some months before admission. It illustrates the advantages of attempting to save the ankle-joint, even although the diseased integuments of which the required flap must be formed might appear to be too far disorganised to be of service. The successful result of the case likewise points to the importance to be derived from delay; for upon more than one occasion the appearance of the stump seemed to indicate an extension of the mischief to the os calcis and astragalus.

The second case was a remarkable example of recovery from an almost hopeless condition, induced by the local injury to a constitution much impaired at the moment of its infliction. In the selection of the operation performed by Mr. Birkett, he was guided by the state of the lacerated integuments and broken bones. There were not enough soft parts unhurt to form flaps of sufficient size to cover the astragalus; but there was reasonable hope that enough could be saved to form, with a remnant of the calcis, a good, firm, resisting pad of heel-tissue at the end of the tibia and fibula. Words can scarcely convey an idea of this man's depressed vital powers for many days. He appeared as if dying on many occasions. The preservation of his life may be partly ascribed to the assiduous care of the dresser, Mr. J. A. Sharp. The advantage of preserving the heel by the method of operating described was singularly displayed in this individual, who can stamp on the ground with the whole weight of his body without the slightest inconvenience.

Case 1. *Disease of the metatarsus and some of the tarsal bones; removal after the method of Chopart; slow, but eventual recovery.*—A man, aged twenty-eight years, of most unhealthy aspect, had been suffering with strumous disease of the metatarsus and some of the tarsal bones for several months when admitted in July, 1867. As there seemed to be no hope of removing the diseased bones and retaining a useful foot, Mr. Birkett removed all the tarsal bones, with the exception of the os calcis and astragalus, after the method of Chopart. The flaps were riddled with holes, the openings of the sinuses to the dead bones. Even the exposed ends of the os calcis and astragalus did not appear very favorable to successful cicatrisation. The healing process advanced as rapidly as could be expected under the constitutional conditions above described; but after the lapse of a month an attack of inflammation of the stump seemed to prognosticate active mischief. Suppuration took place, and after a time the man was desirous to have the leg amputated below the knee. The man's general health, however, improved, and Mr. Birkett encouraged him to wait patiently the healing of the stump. He left the hospital in December, suffering little from the damaged member, although cicatrisation was not perfect.

The patient was readmitted in April, 1868, with dropped hands, much out of health, and with two or three fistulous openings along the line of the cicatrix on the foot. The tendo Achillis seeming to be somewhat contracted, and to draw down the cicatrix, Mr. Birkett divided it. After appropriate treatment, the hands recovered their power, the man's health improved, and the stump assumed a more healthy aspect. In June the cicatrix was almost perfect. A very slight inconvenience was felt from the remains of the foot. In July he was able to walk on the stump, to which a suitable foot had been adapted.

Case 2. *Primary amputation of the foot after the method of Pirogoff; extensive constitutional disturbance; recovery.*—A man, forty-five years old, was admitted in February, 1867, having just sustained an injury of the right foot by the passage of a locomotive engine over it. The metatarsal bones, the cuneiform and cuboid bones, were crushed, and the soft parts, although much lacerated, seemed sufficiently uninjured to allow of integumental flaps to cover the ends of the tibia and fibula. Mr. Birkett, therefore, performed an operation on the principle proposed by M. Pirogoff. He made anterior and posterior flaps, and sawed through the os calcis at about the junction of its posterior fourth with the rest of that bone. That was left in the flap. A transverse section was made of the inferior end of the tibia and fibula close above the malleoli, and the cut surface of the calcis were brought up in contact with them. The tendo Achillis was divided through the wound. He was very much out of health at the time. Great constitutional disturbance followed. The stump sloughed superficially; inflammation extended upwards as high as the thigh; suppuration occurred at several points in the inferior extremity, giving rise to the necessity of making several incisions to allow its escape and remove sloughs of connective tissue. Throughout the end of November, all December, and part of January, his condition was such as to give little hope of his ultimate recovery; but at last he rallied, and improved in health remarkably rapidly. The stump during the time was dressed with a solution of permanganate of potash, and the portion of os calcis was kept in contact with the tibia by a suitable appliance. The constitutional treatment consisted of injections of morphia, quinine, iodide of potash, and iron; the food, of all the nourishment he could take, and stimuli in the form of brandy or wine. Being sufficiently convalescent, he left the hospital in February, 1868. The stump was healed, the piece of the os calcis was adherent to the tibia, and the man could press it on the ground. At this time (July) he can walk well, and support the weight of his body on the end of his stump without inconvenience.

## MIDDLESEX HOSPITAL.

### CHOREA COMPLICATING PREGNANCY FOR THE SECOND TIME; A DEAD FŒTUS WITH ITS PLACENTA EXPELLED THREE WEEKS AFTER ATTACK; CONVALESCENCE.

(Under the care of Dr. H. Thompson and Dr. Hall Davis.)

The subject of chorea in pregnancy has been exciting considerable attention of late, the revival of interest in it being due, in no small measure, to a valuable paper which was read by Dr. Barnes at the Obstetrical Society during the past summer, and which will appear in the Society's Transaction's.

For the following notes we are indebted to Dr. Rice and Mr. O. Vincent.

Sarah C——, married, aged twenty, though looking much younger, was admitted, under Dr. Thompson, Jan. 15th, 1868, for severe chorea of three weeks' duration. It was her third attack. The first occurred when she was twelve years old; the second when she was in her first pregnancy, which, however, terminated at full term, the child being born naturally, and being now eleven months old and healthy.

*State on admission.*—Pregnant; believed to be in her seventh month. Has no uterine pains. Convulsive twitches affect the entire body; are continual while awake, absent while asleep, but more on right side. The patient looks frightened, grinds her teeth incessantly, and smacks her lips.

Is quite conscious, but replies to questions very indistinctly. Tongue nearly clean. Pulse 132. Loud systolic murmur at the heart's apex, also at base; both sounds roughened at midsternum. Bowels costive; appetite fair; upper incisors much decayed. In the evening the patient became more restless, throwing all her bedclothes aside. Constant watching was required by an extra nurse to prevent her injuring herself against the bedstead. There was frequent opisthotonos. She complained of aching pain in the limbs and mouth. Bowels had acted freely from castor oil. Battley's sedative solutions, with spirit of chloroform, in camphor mixture, was ordered every night; belladonna plaster to precordia.

Jan. 16th.—A fœtus with its placenta, of six-months' growth or thereabouts, was expelled rapidly without warning or flooding, at 4.15 A.M.; and the uterus contracted well immediately afterwards. The patient was attended by Mr. Vincent, the resident obstetric assistant. Dr. Hall Davis was now requested to take joint charge of the patient. At 6.30 P.M., the choreic convulsions having become very violent, cholroform vapor was administered to its full narcotic influence for three quarters of an hour; but the movements continued afterwards as severe as before the narcotism had been resorted to. Later, however, she had snatches of sleep of five and fifteen minutes, but at 8 P.M., awoke up again more convulsed, and became so noisy as to require removal to the delirium ward. Headache, and severe pain in the back complained of. At 11 P.M., she had a violent struggle, and then fell asleep for a few minutes.

17th.—At intervals very violent, but had periods of sleep of from five minutes to one hour. Pulse 144. No discharge from uterus. Breasts soft; a little milky serum expressed from nipple. The inhalation of chloroform to be repeated if necessary. The sedative at night; and to take arsenic solution, three minims, and bromide of potassium, six grains, in citrate-of-potash draught, three times a day.

18th.—Slept five hours during the night, in portions. Each time, on awaking, the convulsions were less violent. Headache gone. Subsequently had two hours' more sleep before midday, and now, except occasional grinding of the teeth and twitches, she lies quietly. Murmur at cardiac apex and base, also along sternum and both sides of that bone. Appetite very good. At night the bowels, which had been open yesterday, acted sufficiently and spontaneously. Pulse 96.

19th.—Grinding of the teeth and twitches continue. She now answers questions more easily. Uterus lessening in size. Pulse 108. Same treatment continued.

20th.—The same. Reduced iron, six grains; continue the arsenite of potash with the bromide.

22nd.—Returned to her ward. Slight twitches of lips, *ears*, and limbs. The same treatment continued.

Feb. 1st.—Has considerably improved. No murmur now at the heart's base; faint systolic murmur at the apex. Repeat medicine.

9th.—The same treatment has been continued, with a moderately generous diet throughout varied as required. Discharged convalescent this day. No cardiac murmurs now remaining.

*Remarks.*—The occurrence of chorea in pregnancy is sufficiently rare and interesting to warrant the record of this case. That the violent muscular contractions of the chorea supplied the exciting cause of the abortion, is more than probable. The fœtus had not long been dead, and the placenta did not present a morbid appearance. It is possible that, as in the patient's first pregnancy, also complicated by chorea, the full term was reached, and a living child, which still survives, was the result, the same might have occurred here under an earlier treatment of the disease, instead of at three weeks after its invasion. It is noted that the bowels were costive before admission. This in a subject predisposed to chorea, and more especially in pregnancy, might have exerted considerable influence in determining the attack. There was no history of any fright, or of any cause of mental disquietude. Nor was there evidence of any prior attack of rheumatism; so that the case, so far as a unit goes, does not accord with the experience of M. Sée, and that of some other observers, in support of a frequent relation between acute rheumatism and chorea as cause and effect. It is true there was a systolic murmur, both over the cardiac base and apex in this patient; but these murmurs were most probably due to excessive and irregular action of the general muscular fibres of the heart, aided by some morbid condition of the blood—such, for example, as exists in anæmia, which is so common in chorea, the mitral valve murmur being more especially due to irregular and violent contractions of the columnæ carneæ of that valve. As the murmurs had disappeared on the patient's convalescence, they could not be attributed to organic disease such as might have arisen from a former attack of endocarditis proceeding from acute rheumatism. The ordinary treatment for chorea—gentle aperients, tonics, good nourishment—was pursued, with narcotic sedatives each night as long as necessary, and occasionally chlorotorm. As a tonic, the arsenical solution was first selected, as easily taken, and less likely to constipate than iron. The bromide of potassium was combined with it as a gentle sedative. Subsequently reduced iron was added, and continued during the last three weeks of the patient's stay in the hospital, which did not extend to a full month.

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## NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

### A CASE OF NERVOUS TREMOR IN A WOMAN FOUR MONTHS AND A HALF PREGNANT, FOLLOWING A FALL; MALE CHILD, BORN AT FULL TIME, IDIOTIC.

(Under the care of Dr. BUZZARD.)

IN connexion with the case just related, it may be interesting to refer briefly to an unusual instance of involuntary muscular movements in a mother and child, which came under Dr. Buzzard's notice at this hospital a few months since.

A woman thirty-nine years old came into the consulting-room with general tremor of the limbs and she brought with her a child four years old affected with chorea-like movements. The history gleaned was as follows. The woman was the wife of a porter, and mother of two children one seven and the other four years old. She had enjoyed very good health until she was four months and a half pregnant with her second child when a cab ran against her in the street one day and knocked her down. She fell on the right side, was much frightened, and lost her senses, fainting, she believes, for about ten minutes. On recovering she felt the movements of the fœtus for the first time, although she had previously been convinced of her pregnancy. She was so much shaken by the accident that she kept her bed for three weeks. On the day after the fall she first noticed tremulousness of her limbs, which increased and had continued up to the time of her application more than four years.

When seen by Dr. Buzzard, her arms and legs were affected with uncontrollable shaking, and she walked lame, especially with the right leg. The grasp of both hands was much and equally enfeebled. There was no implication of the facial muscles. So much did the agitation of the muscles of her arm affect her, that she could only direct her fingers with extreme difficulty to pick up objects. She complained of occasional agonising pain of a "screwing" character on the back of the right forearm, halfway between the elbow and wrist. Both legs, too, were affected at times with "catching pains" about the middle of their external surface, and in the ankles. The pains occurred every night, and especially affected the under part of the big toes. She described them as being "as though someone pinched up and wrung the flesh." Both legs, but the left especially, were affected with unusual varicosity; and the feet were puffy in appearance and clumsy, but not œdematous, the alteration of outline being dependent apparently upon the varicosity.

The family history of this woman was of marked neurotic character. Her mother had died insane. Of two brothers, one had epileptic fits. A sister also was affected with epilepsy and was blind.

The male child which she was carrying at the time of her accident was born at the full period of gestation, but with evident symptoms of arrested development. At four years of age he was very small, with spare limbs, and an old thin face, and the mind perfectly idiotic. His head was nearly always drawn back by spasmodic contraction of the muscles at back of neck, and there was a continual wagging movement of it from side to side. The arms and legs were affected with constant twitchings, which continued, it was said, during the child's sleep. A few inarticulate sounds (one somewhat resembling "Mam") constituted his attempts at speech. There was internal strabismus of the right eye, and frequent spasmodic contraction of the facial muscles of the right side. When an object was held near to him, he made futile efforts to clutch it, the face being then distorted with grimaces, the tongue protruded, and the fingers twitched with exceptional rapidity and complexity. His capacity to swallow was so limited that it was nearly impossible to give him solid food, and even a teaspoonful of milk could only be got down after great effort. Under an administration of arsenic for a few weeks the mother almost entirely lost her nervous tremor. The child, when lately seen, remained in the condition described.

## WESTMINSTER HOSPITAL.

### TRAUMATIC TETANUS TREATED WITH CALABAR BEAN; DEATH; AUTOPSY.

(Under the care of Mr. FRANCIS MASON.)

ALTHOUGH the physiological effects of the ordeal bean were produced in this case, no influence for good appeared to be exerted over the course of the tetanus.

The patient was a girl, aged fifteen, who was admitted on September 14th, 1867. She had enjoyed good health until one month previous to her admission, when she was struck violently on the occiput with a rolling-pin. There was a considerable wound, and profuse hæmorrhage at the time, but she soon recovered. She continued well (with the exception of having a slight earache on the right side for about three weeks, when she experienced a sense of stiffness about the neck and jaws, and, thinking she had taken cold, applied at the hospital. The house-surgeon Mr. C. T. Winckworth, suspecting she was suffering from premonitory tetanic symptoms admitted her, and ordered her four grains of calomel, to be followed in three hours by an ounce and a half of house mixture, and a linseed poultice to the neck.

On Sept. 17th she had a restless night, perspiring profusely. Took her food, which consisted of beef-tea, brandy, eggs, &c., well. Pulse 117, weak; abdominal muscles quite hard to the touch. She was ordered chloroform inhalation for one hour, and then to take one-eighth of a grain of extract of Calabar bean every hour.

Sept. 18th.—The tetanic spasms were very violent, coming on every five minutes. Risus sardonicus well marked. Asked imploringly for the chloroform inhalation, which she said took away the pain. Pulse 130, weak. She continued the Calabar bean, and when seen at midnight was much calmer, the spasms being less frequent and less violent.

19th.—Her great complaint was intense thirst. She asked for some bitter beer, which she much enjoyed. The pupils were rather contracted. She had at intervals during the day the most violent spasms, and complained of great pain in the front of the abdominal wall. She had well-marked opisthotonos. She could not swallow so well, a quantity of thick sputa collecting in her throat. She passed her urine unconsciously. Dr. Anstie saw her with Mr. Mason, and it was agreed to discontinue the Calabar bean, and give her two grains of quinine in a mixture every four hours.

Without following the minute details of the case, it may suffice to say that she continued in much the same condition for three days, when a subcutaneous injection of morphia was given. She got a little sleep soon after; but the next day her appearance was most distressing. She suffered intensely from the spasms, and took the chloroform inhalations with avidity. She was liberally supplied with stimulants and food, and enemata were given; but she got gradually weaker, and died exhausted on September 27th, at noon—that is thirteen days after admission.

*Autopsy twenty-four hours after death.*—Surface of body jaundiced. Rigor mortis strongly marked in jaw and lower extremities, but less marked in the upper extremities. Extensive patches of blood within the sheaths of the recti abdominis. Left rectus abdominis ruptured very nearly across, one inch below the umbilicus. The liver, weighing fifty-two ounces, was very adherent to the neighboring parts; it was fatty, and of a bright yellow color. The muscles of the back were much congested, more especially in the lumbar region. On reflecting the scalp backwards, a piece of hair-pin, about an inch long, was found imbedded in the situation of the blow already referred to in the history of the case; but there was no skin wound, nor any special thickening or change of any kind noticed in the part. The central parts of the brain, corpus callosum, and fornix were soft; but the nerves themselves appeared to be firmer than usual. External to the dura mater in the spinal canal was a quantity of bright yellow fluid. The pia mater was much congested, and the spinal cord softened throughout.

## UNIVERSITY COLLEGE HOSPITAL.

### A CASE OF HERPES ZOSTER.

(Under the care of DR. RINGER.)

AN interesting case of herpes recently occurred amongst Dr. Ringer's out-patients, which illustrates in a marked manner the localisation of the eruption of this disease to the parts supplied by certain nerves. The patient was a girl of eighteen, and the group of vesicles occupied almost exactly that portion of the integument which is supplied by the second cervical nerve, and by the inferior maxillary branch of the fifth. The eruption was limited to the right side, and extended over the upper part of the anterior triangle of the neck, supplied by the superficial cervical nerve (of the second cervical); while one group of vesicals was situated behind the middle of the sterno-mastoid, in the position of a small branch which the superficial cervical usually sends backwards to the integument. The eruption extended over the whole of the space supplied by the great occipital nerve at the back of the head, and by the great auricular nerve behind and on the back of the ear (both offsets of the second cervical.) One small group was situated on the antihelix, about the spot at which an offset of the great auricular pierces the ear; while a larger patch of eruption was situated over the angle of the jaw, corresponding to the branches which that nerve sends forward over the parotid. Over the portion of skin supplied by the inferior maxillary nerve the eruption was distributed thus: There was a group of vesicles near the angle of the mouth, corresponding to the labial branch of the inferior dental. The whole of the hairy scalp supplied by the auriculo-temporal was occupied by the eruption, and a group of vesicles on the lobule and lower part of the outer surface of the ear corresponded to the auricular branch of the same nerve. The only parts of the eruption which could not be referred to these nerves were some vesicals just above the border of the lower jaw, higher than the superficial cervical is usually supposed to extend, and two patches by the side of the last cervical and first dorsal vertebræ.

A similar case was in the hospital a few months ago, under the care of Sir William Jenner. The patient was a lad of seventeen; but in his case the eruption was confined to the integument supplied by the ophthalmic and superior maxillary branches of the fifth, the part supplied by the inferior maxillary being unaffected. The eruption was on the left side, strictly limited by the middle line, and affected the anterior part of the hairy scalp, the forehead, and the upper part of the face and side of the nose, being bounded below by the mouth and a line drawn from the angle of the mouth to the malar bone, an inch and a half in front of the ear. The eyelids were œdematous, and the conjunctivæ inflamed. Thus it corresponded closely to the cutaneous distribution of the supra-trochlear and supra-orbital and nasal of the ophthalmic, and of the orbital (temporal and malar) and infra-orbital branches of the surperior maxillary.

The exact limitation of the eruption to certain nerves in these two cases seem to render them worthy of a detailed description.

## ROYAL NAVAL HOSPITAL, YOKOHAMA, JAPAN.

### A CASE OF EMBOLISM FOLLOWING PLEURO-PNEUMONIA; GANGRENE; AMPUTATION OF THE THIGH; RECOVERY.

WE are indebted to a correspondent for the following interesting case, and regret that the regulations of the service interfere with the publication of the names of the surgeons under whose care the patient made so fortunate a recovery.

A. B——, admitted from her Majesty's service Oct. 3rd, 1867. From the medical statement accompanying this man, it was found that he had been several times under treatment for trifling complaints during the past twelve months, and that on the 24th September, 1867, he was attacked with pneumonia of right lung. It appeared also that on the 1st October, severe pain being complained of in the right leg, a small firm tumour was discovered in the popliteal space, obstructing the circulation. On admission the following report was made of the patient: Countenance anxious, and indicative of suffering; breathing hurried and oppressed. He states that he has been ill frequently during the past twelve months for short periods, but notwithstanding he has always been considered a tolerably healthy man. Never suffered from rheumatism. Appears in very indifferent condition, and has evidently lost much flesh. Pulse 100, small; tongue coated; bowels regular; skin hot. There is considerable bulging of the right side, with other signs of effusion into the right pleura; also consolidation of lower lobe of lung. Complains of intense pain in the left leg, nausea, cough, inability to sleep, thirst, and want of appetite Heart's action normal, sounds healthy. Has no feeling in left leg below the knee, and the part is cold and shriveled. Toes have a dark sloughy appearance. There is a firm tumour, as above mentioned, completely obstructing the circulation below, and the impulse of the femoral is much less than in that of the other extremity.

On the 6th of October the leg was black and sphacelated; a line of demarcation had formed immediately below the knee-joint; and although the patient was so much reduced that serious doubts were entertained as to his surviving the operation, he was placed under the influence of chloroform, and the limb amputated about the junction of the middle with the upper third. There was no bleeding from the large vessels, and before applying ligatures a long clot was drawn out of each. About an inch and a half of lower flap and margin of upper sloughed, and for weeks after the operation there were many alternations (one time favorable, at others most unfavorable) in the condition of the patient. He, however, ultimately recovered, and left the hospital on the 14th of April, 1868, for England in perfect health with a very good sound stump. The healing of the stump was much retarded by inflammation and profuse suppuration along the front of the stump in the femoral sheath, and surrounding parts, as far as Poupart's ligament, no doubt produced by the obliterated femoral artery acting as a foreign body in the part. Pints of pus were discharged from time to time from this locality.

## Editorial.

### PROFESSOR HAUGHTON ON FOOD AND FORCE.

The Address of Professor Haughton at Oxford, on the relation of food and force in the animal economy, marks an era in physiology. We do not mean to say that the Irish professor is the sole competant and final authority on this great question; but he stands in a peculiar relation to it. He is, at any rate, a physiologist of the first rank, and his original researches have conducted him to certain conclusions which come at a very critical time. It is not to much to say that his adhesion, on independent grounds, to what may be called the new physiology of food, is pretty well equivalent, under the circumstances, to a settlement of the chief matters in dispute.

For years the theory of Liebig, which classified the elements of food under the two main groups of "flesh-formers" and "heat-producers," respectively, held nearly undisputed sway in the schools. But for a long time past there has been a growing discontent among physiologists of all countries with this beautiful and fascinating theory; and one by one the greater number of the active workers in this department of science have lapsed into open or silent rebellion against the doctrine. No better proof of the widespread disaffection to the classic belief could have been given than the eager enthusiasm with which the not very complete researches of Fick and Wislicenus were received, about two years ago. Our readers do not need to be told that the Liebigian doctrine assigned the production of muscular force to the decomposition of nitrogenous tissues, the waste of which was supposed to be represented by the urea of the kidney secretion; and the production of animal heat to the combustion of non-nitrogenous matters; thus marking off a very clear and definite office to each of the two great divisions of organic foods. The experiments of Fick and Wislicenus showed plainly enough that it was impossible to account for muscular work done in a given period by the waste of nitrogenous tissues during the same time; and on the other hand it was not only possible, but certain, that such force can be produced by the direct oxidation of non-nitrogenous food. It is unnecessary here to trace all the modifications and corrections of Fick and Wislicenus' conclusions which have been made by Frankland, Parkes, and others, since we fully described these at the time. The point of interest at present is that simultaneously with Fick's experiments, another series were being carried on by Professor Haughton, without any communication. These experiments abundantly proved that increased muscular exercise does not increase the average daily excretion of urea, and that it is certain that the muscular force must be otherwise accounted for than by the waste of muscular tissues. Joining these facts with the remarkable diminution of urea produced by Pettenkofer and Voit in dogs, and by Ranke in experimenting on himself, by mere starvation, it is plain, on the one hand, that a certain portion of the urea daily excreted is due to vital work unconnected with muscular exertion, and on the other hand that the remaining urea does not represent a sufficient amount of force developed to account for the muscular work. Professor Haughton repudiates the extreme view, to which some physiologists have leaned since the experiments of Fick and Wislicenus, that nitrogenous foods contribute no portion of the force employed by the muscular system; he inclines to the belief that the combustion both of nitrogenous and of non-nitrogenous foods is available for this purpose, but he draws an inference from the extremely different food eaten and amounts of urea excreted, by the carnivora and men who live like them, and the ruminants and men who live like them, that the kind of force stored up by nitrogenous compounds is available for brief and violent developments of muscular activity, while the forces generated from the combustion of such food as the ruminant eats is adapted for long and steady exertion.

The most practical part, however, of the new views, which may now be said to be established, respecting the relations of urea to the generation of force in the body, is the entirely new ideas we are acquiring as to the relative importance, as regards the production of bodily exhaustion, of muscular exertion and of the organic processes which maintain life. It is a common and most disastrous mistake to suppose that a man lying still in bed, suffering from acute fever, is undergoing the minimum of those processes which can exhaust him. Professor Haughton shows (as indeed has been done, though less forcibly, by others) that the elevation of the bodily temperature by so much as 5° Fahr. (and it is often more than this) involves an expenditure of force *greater than that which would be employed by an agricultural laborer in a hard day's work.* We know where this force comes from, for in the case of typhus, which Professor Haughton quoted, and in pneumonia and other acute diseases which he might have mentioned, the excreted urea is enormously increased, showing a large and entirely abnormal combustion of the nitrogenous tissues of the body. The inference is irresistible. The demand on us is peremptory for supplies of combustible food which shall be consumed by the oxidising process, and thus supply the force which must have otherwise been generated a dangerous expense to the tissues; and it is important to remark that Professor Haughton not only recommends beef-tea on this ground, but distinctly acknowledges that *alcohol*, where useful, acts in the same way. There is, no doubt, room for great difference of opinion as to the frequency and the extent to which alcohol should be used in acute disease, and it cannot be too often repeated that individual cases must be treated on their own bases; but it may be hoped that we shall henceforward hear no more the statement that alcohol does not act as a *food.*

Equally pungent were the remarks of Professor Haughton on a different and an even more disputed topic—the pathology and treatment of Asiatic cholera; and it may here be remarked that the very large and distinguished audience emphatically cheered the lecturer's words. He expressed a great regret that an authority so distinguished as that of Sir Thomas Watson should have been elisted, for no apparently sufficient reason, on the side of the cholera theory of Dr. Johnson, which teaches that we must assist Nature to eliminate the morbid matters. He drew a graphic picture of the prostration (very different in cause, but equally great with that of typhus) in which the cholera patient is placed during collapse and while freely allowing that the attempt to pour in alcoholic food, and especially opium, is useless and mischievous, insisted energetically that we ought not to run any risk of adding to the bodily prostration by active measures of our own, and that any hopes for the future which we can entertain must lie in the direction of supplying to the body directly its lost heat. There was a hearty ring in Professor Haughton's denunciation of that metaphysical figment—"mother Nature, whom we are to assist with filial reverence, forsooth, in carrying out her pathological designs—which struck home to the common sense of the audience; and when he derisively declared his doubts whether the venerable female in question might not, after all, be only a *stepmother*, with very bad principles and temper, the storm of laughter and cheers that arose had a really prophetic significance, for it meant that the reign of metaphysics in medicine is pretty well over. Altogether, the address was highly successful. The occasion was a great one, the subject was of immense importance, and we feel sure that we speak the general mind when we say that Professor Haughton well performed his allotted task.

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## THE NOMENCLATURE OF DISEASE.

We could hardly have anticipated, when we lately welcomed the appearance of the new Nomenclature of Disease prepared by the College of Physicians, and urged its immediate and universal adoption, that circumstances would so soon arise as they have done to show the extreme importance of our recommendation.

This summer has been one of exceptional heat combined with drought, and in July the great increase of diarrhœal disorders in London showed that the influence of the weather on the physical organisation was manifesting itself in such a manner as to make it a matter of very earnest hope that no chance seeds of epidemic cholera might find their way into a soil so favorable for their reception and development.

The deaths from "diarrhœa," according to the Registrar-General's Weekly Returns, averaged about 70 per week during the month of June; but in July the weekly average exceeded 350, and in August it was 240. During these three months the deaths specified in the Returns as having occurred from "cholera" were, week by week, as follows:—1, 3, 8, 18, 19, 19, 37, 58, 38, 29, 29, 15, and 10. Altogether the total deaths from these two diseases in the thirteen weeks from the beginning of June to the end of August amounted to 3018 from "diarrhœa," and 284 from "cholera."

Now, assuming that the term "cholera," as used by the Registrar-General, had really meant the true "malignant cholera" or *cholera pestifera* of the new nomenclature, these 284 deaths would have been regarded as a serious matter indeed, and long since we should have had a revival of those extraordinary (they ought rather to be ordinary) precautions with which we are familiar in epidemic seasons. But nothing of the sort has taken place; the "local authorities" of the metropolis have rested calmly free from the importunities of health officers, and the serenity of the parochial mind has needed no special ruffling by the press in its capacity of monitor of the public safety.

Unconscious, therefore, of any danger in our midst, it may be judged how great was our astonishment to learn recently that the Spanish Government had issued a decree declaring Great Britain and all our colonies infected, and imposing ten days' quarantine on all vessels from any port in our dominions. Soon afterwards it was announced from Lisbon that vessels coming from any port in Great Britain, London excepted, would be allowed free communication; London was still considered "suspected," and was to remain so until further health reports were received. To complete this remarkable chapter of sanitary history, we may add that a telegraphic despatch, received at the Foreign Office on the 12th inst., states that the Spanish authorities have now declared *all* English ports free from cholera, and that quarantine is no longer necessary.

On the annoyance, vexation, and cost, which this proceeding on the part of the Spanish Government has entailed on a great number of persons it is not our purpose to dilate, the most unsatisfactory part of the business being that, as *The Times* very rightly points out, something may be said in excuse of a foreign Power which has been no doubt misled by the loose nomenclature too frequently applied to diseases in this country. The Spaniards do not, in all probability know that what is called "cholera" in our official statistics includes "choleraic diarrhœa," "English" or "summer cholera," "cholera infantum," &c.; they probably attach but one meaning to the term, that one having reference exclusively to the malignant disease which, in its epidemic form, they strive to avert from their shores by the aid of quarantine. It is more than likely that the Spanish authorities drew their information as to the existence of cholera in this country rather from some secondary source than from the official returns themselves otherwise it is hard to conceive how they could have fallen into so grievous an error. For although, in the tabular statement of deaths published by the Registrar-General every week, the terms "diarrhœa" and "cholera" are used without any qualification whatever, yet in the introductory remarks attention is ordinarily directed to the *character* of the cholera cases. Thus in the return for the week ending July 25th:

> "Fifty-eight deaths by *choleraic diarrhœa* or *summer cholera* were registered in the week: thirty-eight were children under one year of age, eight aged one year, one aged three years, and two aged five years."

And further, for the week ending Sept. 5th:

> "The deaths of two adults and of two children by cholera were registered. *These are cases of the ordinary summer cholera. Asiatic cholera has not been epidemic during the summer in London, or in any of the ports of the United Kingdom.*"

If, as has been suggested, the Spanish authorities relied on the statements of "trustworthy English journals," wherein the chances are that the distinction sometimes drawn in the official returns may have been for the sake of brevity omitted they may to some extent be excused, although in so important a matter as the imposition of quarantine nothing short of the most authentic information ought to be relied on.

We entirely agree with *The Times* that the nomenclature of disease should in future be placed on such a footing as to preclude a similar mistake. The Registrar-General's returns deserve all that is so frequently said and written in their praise, and a very little modification would make them perfect. In their present form they are too comprehensive, and therefore likely, in regard to many other diseases besides cholera, to mislead any but those particularly conversant with the principle involved in their arrangement. There can be no possible objection to Dr. Farr's adherence to his own plan of classifying diseases for statistical purposes, provided he at the same time publishes the details prescribed by the College of Physicians. In the case of such a malady as cholera, the form of the disease should be distinctly stated, both in the tables and in the letterpress, so as to show unmistakably whether it is mere simple cholera, or the malignant form, against which the protection of quarantine may be invoked. The true Asiatic or malignant cholera is an entirely distinct disease from the ordinary cholera of our summer and autumn seasons; and it is most important that this fact should be clearly set forth in the official returns of death. No doubt cases will arise in which from inaccurate or careless diagnosis, no distinction as to the form of the disease may appear on the medical certificate of the cause of death; possibly, also, practitioners may think there is little use in making distinction of which no record is preserved; but these cases would soon disappear if the Registrar-General were to appeal to the profession to aid him by adopting the new nomenclature, as he did in times past in regard to the one now in force. We need hardly remind him that so important an expression of professional opinion as the new nomenclature implies merits the most prompt and acquiescent attention on his part; and in the interests of his department, as well as of those public considerations to which every good citizen is bound to have respect, we trust that he will at once adopt a form of publication for fatal diseases which will render such a misapprehension as that under which the Spanish Government has labored impossible for the future.

## APHASIA.

The Norwich discussion raises once again the question of the intimate physiological nature of that curious cerebral change which produces the disease known under the various names of aphasia, aphemia, alalia, and a dozen other designations. There has seldom been, in the history of medical polemics, a more singularly tangled controversy than this. Perhaps it was natural that a dispute on the nature of speech should involve more of those confusions which depend upon mere differerences in words; at any rate, there has rarely been a controversy with so much of the merest *logomachy* in it as that on aphasia.

If we endeavor now, at the end of six weary years during which the battle has raged, to sweep aside the mere rubbish and débris, and to get at the solid facts and principles which still remain in a recognisable shape, it is not impossible to see how the idea of aphasia first fashioned itself, and the form which the doctrine is likely ultimately to assume. The discoveries of Dax and Broca as to the concurrence of aphasia with left-sided brain disease, seemed at first to strengthen the semi-phrenological view which was more hazily sketched in the papers of Bouillaud, which affirmed that disease of the anterior lobes was the *vera causa*. It seemed as if we were tending to a revival of that coarse and mechanical view of the function of speech which regarded it as a concrete and definite entity that could be located in a small and separate portion of the brain. It was no wonder, perhaps, that so strange a phenomenon as that of a man with a brain that could think, and a tongue that could wag quite well, but without any power to make the thinking and the tongue-wagging coincide, should provoke that kind of intense curiosity which is never satisfied till it invents a definite, perfect, and "simple" explanation of the whole affair. At any rate it is certain that there was at first a great disposition to settle this matter of aphasia by a rude application of a bastard phrenology. If there be one writer more than another to whom medicine is indebted for having first drawn attention to the insufficiency of this kind of view, it is Dr. J. Hughlings Jackson. He it was who, in various papers in this journal, insisted, first, that language was a very much more complicated faculty than had been assumed; and, secondly, that if a very large number of fatal cases of aphasia showed lesions about the neighborhood of the third frontal convolution, that was as much as to say that a large proportion of those cases had lesions in the immediate surroundings of the corpora striata,—i.e., in the most important centre and meeting-place of the various fibres of the brain. A similar view was argued in the late discusson at Norwich, by Dr. Hughes Bennett. Dr. Jackson has added most important observations on the different degrees with which the intellectual and emotional kinds of speech are affected. He has shown that the man who cannot by any possibility find the right phrase for a merely indifferent object, will *swear* with the utmost precision as well as vigor. He has shown, too, that aphasia is by no means so rigorously separated off from other varieties of cerebral disease, affecting the intellect on the one side, and muscular movements on the other, as had been carelessly supposed by some.

The course of speculation on this subject, then, has recently tended rather to an expansion of our views, and the rejection of anything like distinct localisation of speech, as a faculty, in a particular convolution of the brain. There remain, however, an interesting and curious series of facts to be explained—facts which are so peculiar that we may be almost certain that in them lies the future elucidation of the whole question, although that elucidation will probably be of a nature precisely opposite to that which at first sight they seem to indicate. First of all, there is no denying the general fact of the great preponderance of left-sided brain lesion in well-marked aphasia. Secondly, it must be admitted that the third frontal convolution is involved, if it be not the only part affected, in a great majority of cases. Now, in seeking for an explanation of these very curious facts, it is necessary to take notice of some special statements and theories that have been put forward. First, there is the statement of Gratiolet, that the left frontal convolutions are always developed more quickly and completely than the right—a theory which would be exceedingly interesting if true, but which Carl Vogt, no mean authority in such matters, expressly contradicted and repudiated at Norwich. Then there is the fact—which Carl Vogt himself mentioned at Norwich, and which is, we presume, undisputed—that in *apes* the third left frontal convolution actually is *entirely absent*.

Of theories which go to explain the predominance of left-sided action in speech, there is none more remarkable than that which was independently arrived at by Prof. Broca (1865) and by Dr. Moxon (1866). This theory ascribes the lead taken by the left cerebral hemisphere, and especially its frontal convolutions, in those mental acts which make appropriate speech and writing possible, to the constant *education* of the left side of the brain by the traditional habit which decides that we shall perform a variety of daily and common acts (implying, however, great skill and delicacy of movement) with our right limbs. If the theory of Gratiolet were true—which, however, is disputed, this centripetal influence would be reinforced by the natural disposition of the left convolutions to develop with more rapidity than the right. But at any rate, we have now pretty well got rid of any such narrow notion as the actual and bodily localisation of a complex faculty like speech in any one convolution; and it is easy to see that the undoubted predominance of left-sided lesion proves, at the most, nothing more than a habit and a tendency.

## CHEMISTRY OF THE URINE.

Two important essays have recently been published on the Physiology of the Urine. The first of these is a thesis presented by M. Byasson for his degree, in which he gives the result of his investigations upon the influence of mental work on the composition of the urine, and contrasts it with the changes produced in the same secretion by vigorous bodily exercise. An important line of inquiry seems here to be opened up, and it is somewhat surprising that it has not attracted more attention from the hands of chemists and physiologists. It is reasonable to suppose that so large a mass of highly albuminous material as the cerebro-spinal nervous system represents must furnish, even when at rest, as a mere result of the ordinary processes of metamorphosis consequent on its vitality, a notable proportion of urea, and, *a fortiori*, a large amount when the activity of those processes is exalted by the active discharge of its functions. But we do not remember to have seen an account of any inquiries with this specific object in view. The details of M. Byasson's experiments are not yet accessible, nor do we know in what mode he exerted his mental faculties. But the general results at which he arrived are, that, in the first place, cerebral activity is accompanied by an augmented excretion of urea; secondly, that, under the same circumstances, the alkaline sulphates and phosphates are increased; and thirdly, that the discharged water is more abundant, which is in accordance with the well-known fact that large quantities of urine are secreted under nervous influence and by nervous people. If we compare these results with those which are found after the performance of vigorous muscular exertion, it is noticeable that in this last there is also an increase in the quantity of urine and of urea; but that instead of an augmentation of the alkaline sulphates and phosphates, the proportion of uric acid and of chloride of sodium is increased. So satisfied is M. Byassan of the accuracy and constancy of these observations that he remarks:—"If the urine of a man who had followed one system of diet, and who was otherwise placed as nearly as possible in the same external conditions, were examined for three days, it would be possible by analysis alone to determine whether he had been in a state of repose or engaged in vigorous mental or muscular exercise."

The second essay to which we would call attention is by Weigelin of Stuttgart, who, in the course of an extensive series of investigations upon the circumstances modifying the production of urea, has particularly examined the effects of muscular exertion. Weigelin states that the earlier researches were directed to the determination of the production of urea during relatively long periods, as of twenty-four hours; but that it was suggested to him by Vierordt to examine the urine in the period of rest immediately following two hours' vigorous muscular exertion. He was well prepared for such a research, as he had previously made a series of accurate analyses of his urine at each hour throughout the day. In these experiments he found it requisite to drink freely, lest the excretion of urea by the kidneys should be in any way checked by a deficiency of water; and, on the other hand, to control the effect of the ingestion of larger quantities of water than usual, he undertook additional experiments to show the effects of such ingestion when the body was at rest. He believes he has been able to prove that a very remarkable augmentation in the excretion of urea, occurs as a consequence of muscular exertion amounting in the two hours immediately succeeding to a period of work of equal duration to as much as fifty per cent. more than the ordinary quantity. This appears to be a very important result, and, if confirmed by subsequent observers, will render a revision necessary of the statements which have of late been so confidently propounded, that muscular effort is attended with but trifling wear and tear of the proper substance of the contractile tissue. So requisite is caution for the advance of true science, and so necessary is it that all the conditions present should be carefully investigated before a well-established doctrine is thrust aside. Other and subsidiary results obtained by Weigelin are, that in persistent muscular contraction, such as pulling against a dead weight, or as in tetanus, there is a larger production of urea than when work is performed —that is, than when the muscles alternately elongate and contract. Finally, he observes that the rapid ingestion of water causes a more rapid increase though only for a short time, of the amount of urea as compared with the other constituents of the urine.

## MODE OF FORMATION OF A BLISTER.

The pathological changes which take place in some of the simplest, or perhaps we ought to say, in some of the commonest affections, are still but very imperfectly understood. Take the case of a blister. As generally understood, it is supposed to be an exudation of fluid, which, discharged from dilated vessels, passes through the rete mucosum or Malpighian layer of the skin, and accumulates between the epidermis, that constitutes the elevation, and the rete mucosum, which is held to remain attached to the surface of the dermis. The difficulty which at once suggests itself here is, why there should be a detachment of the epidermis from the rete mucosum—why the papilla should not be left bare when the raised skin is removed. Some recent investigations by Prof. Biesiadecki show that our previous knowledge of the process, though in the main correct, has not been complete or accurate. He has endeavored to fill up this hiatus, and has taken as the subject of his observations the small vesications that are caused by a burn, because these are quickly produced, and are not, as in the case of the minute blisters which occur in disease, accompanied by any previously diseased conditions of the skin. If a subject he burnt with a hot iron, there will be found in the neighborhood of the eschar, after the lapse of a few hours, sundry small vesications; these are well adapted for investigation. If such a blister be cut out with a portion of the adjoining skin, macerated in chromic acid, and imbedded in gum, complete vertical sections may be obtained. It is then found that both the papillæ and the stratum Malpighii have undergone important changes. In the smaller vesicles the papillæ are enlarged, their connecting tissue presents lacunæ, and the vascular loops are greatly dilated and apparently elongated. The epidermis is altogether detached from the papillæ except in the hollows between the papillæ, and the space between the two is occupied by innumerable very fine fibres, which seem to be on the stretch. The fibres do not at first sight give the idea of elongated cells, as they are of equal thickness and have no nuclei, though one or two may be scattered here and there. They readily stain with carmine. When the vesications are larger, and the fluid more abundant, the fibres are torn through, part adhering to the inner surface of the epidermis, part to the outer surface of the papillæ. Amongst them, some club-like cellular structures, with nuclei in their interior, may be seen adhering to the papillæ by their elongated extremities. In the serous contents of the vesicles a few round nuclei are suspended. Biesiadecki states he was long in doubt respecting the origin of these fine fibres, but he has now convinced himself that they really proceed from the cells of the rete mucosum, as the intermediate forms between the finest fibres and the unchanged cells may with care be seen, whilst the surface of the papillæ is well defined, so that they could not proceed from the connective tissue. We may therefore conclude that in the formation of a blister from a burn there is, in the first place, a great dilatation of the bloodvessels, which immediately occasions a serous exudation. This permeates the tissue of the cutis and reaches the rete mucosum, the cells of which do not appear to be capable of imbibing fluid. As the deeper ones adhere strongly to the papillæ, and as the accumulating serous fluid, cannot escape through the condensed cellular layers of the epidermis, the cells constituting the rete mucosum are gradually put upon the stretch, at first being merely elongated, and finally becoming converted into fibres in which no trace of a nucleus can be discerned. These facts appear to us to be of great interest, and they teach that vesicles may be traversed by a framework of fine fibres, as it is well known in the case with pustules—e.g., those of small-pox.

# Medical Annotations.

"Ne quid nimis."

### THE OPHTHALMOSCOPE IN DISEASES OF THE NERVOUS SYSTEM.

M. Bouchut has just sent to the Academy of Sciences of Paris the results of his more recent researches on the utility of the ophthalmoscope in diagnosticating diseases of the cerebro-spinal system. Through the novelty and interest of the subject we are induced to sum up briefly the more striking features of this memoir. Most of the diseases of the membranes of the brain and spinal cord being accompanied by optic neuritis, neuro-retinitis, inflammation of the choroidal membrane, and papillary atrophy, it can be understood how the ophthalmoscope enables us often to detect in the interior of the eye disorders of circulation, of secretion, and of nutrition, which indicate an organic disease of the cerebro-spinal system. It is through the anatomical and physiological connexions of the eye with the spinal cord and brain that we may explain the law of coincidence of optic neuritis with organic injuries of the nervous system. Each time that some violent impediment to cerebral circulation is brought on by the existence of some injury of the cerebrum and of the spinal cord, papillary and retinal hyperæmia is the consequence. When it is the brain which is the seat of acute or chronic phlegmasia, the inflammation may extend to the eye by following the course of the optic nerve. On the other hand, diseases of the anterior columns of the cord may, through the anastomosis of the parts with the great sympathetic nerve in the situation of the two first dorsal pairs, produce in the eye various phenomena of papillary hyperæmia, which bring on at a subsequent period wasting of the optic nerve.

These facts show through what mechanism diseases of the nervous system stamp themselves on the eye so as to be detected by the ophthalmoscope. Other results are mentioned by the author which may be of use whilst determining the diagnosis. Thus the optic neuritis and the neuro-retinitis produced by the acute or chronic diseases of the nervous system are generally observed in both eyes; in cases of injury of the brain, or of its membranes, optic neuritis is habitually more marked in the eye corresponding to the hemisphere which is more seriously altered; changes of the optic nerve and retina, complicated by disorders of sensibility, intellect, and movement, invariably indicate an organic disease of the encephalon. It may be added that the alterations of the optic nerve and the retina should not be isolated from the other symptoms of the morbid condition. When considered thus, detection of their presence gives to the diagnosis an undeniable certitude.

The auther concludes by naming the diseases of the nervous system in which optic neuritis and neuro-retinitis are observed, and he draws up the following list:—Phlebitis of the sinuses, acute or chronic meningitis, chronic encephalitis, cerebral hæmorrhage, tumours of the brain, contusion and compression of the brain, chronic hydrocephalus, abscess of the brain, acute myelitis locomotor ataxy, essential or idiopathic contraction, and certain cases of epilepsy, of paralysis, or of neurosis, associated with an organic lesion of the nervous substance.

### ACUPRESSURE, TORSION, AND CARBOLIC ACID.

Those practitioners who, whilst bringing up their sons or pupils to the metropolis to commence their medical studies, take the opportunity of revisiting the wards and operating-theatre of their old hospital, may not improbably find methods of treatment revived which, in their day, were thought to have been exploded long since, and to have been superseded by many and manifest improvements. Foremost amongst the resurrections of the day are the methods of treatment of wounds and abscesses so forcibly insisted upon by Professor Lister, and the means of arresting hæmorrhage by acupressure or torsion, as advocated by Sir James Simpson and Mr. Syme respectively. Those who have hitherto placed their faith upon the simple "water-dressing" will smile, perhaps, at the revival of those "greasy dressings" so vigorously denounced by Liston and those of his school of thought, and will be inclined to pooh-pooh the substitution of other methods for the hitherto satisfactory ligature of hemp dexterously tied by a trained assistant. They must bear in mind, however, that all these practices have one object in common—the prevention of suppuration, and hence the diminution of the risk of operations.

The movement in this direction certainly dates from the invention of acupressure by Sir James Simpson, and though London experience has not confirmed to the full the enthusiasm of Professors Pirrie and Keith of Aberdeen, their efforts, by directing the attention of surgeons to some of the drawbacks to the use of the ligature have done much good. It is not every London hospital which possesses a surgeon of energy sufficient to travel to Aberdeen to investigate the practice of acupressure at head-quarters like Mr. Cooper Forster, of Guy's Hospital, and it is to that hospital, therefore, that those who desire to see the operation in perfection should direct their steps.

Professor Lister's views with respect to the antiseptic effects of carbolic acid, having been published in The Lancet during the present year, cannot fail to be well known to our readers. The idea of excluding atmospheric air from a wound is by no means a new one, and various attempts have been made from time to time to effect this object, notably quite recently M. Maisonneuve's system of "atmosperic suction," or the application of an exhausted receiver over the extremities of stumps. Mr. Lister's plan has the great advantage over this of simplicity and cheapness, and when once its details have been mastered, nothing can be easier of application. We have witnessed the treatment of compound fractures by this method in several of the London hospitals, and there is at this moment in University College Hospital a convalescent case of bad compound comminuted fracture of both bones of the leg, which would most certainly have been amputated but for the favorable opinion entertained of the carbolic acid treatment. In the same hospital there have been several cases of amputation, removal of tumours, &c., which have been treated antiseptically with the best results.

Torsion of arteries for the arrest of hæmorrhage, though mentioned by Galen, was not systematically brought before the profession until thirty years ago, when Amussat, Thierry, and Velpeau simultaneously wrote upon the subject. Adopted by Dupuytren and Lisfranc, the method nevertheless fell gradually into disuse in France, and in this country it cannot be said to have ever established a hold. Its modern revival is due in great measure to Mr. Syme's influence, and papers upon the subject have been recently read by Mr. Bryant and Professor Humphry of Cambridge. Nothing new can be said upon the physiology of the subject, which was fully investigated by the French surgeons; it only remains for surgeons of the present day to discover whether, with the advantage of anæsthesia, and therefore greater deliberation in the performance of operations, it is possible so securely to twist all the vessels of a stump as to run no needless risk of secondary hæmorrhage; and here the results of London hospital practice, so far as they have gone, are eminently satisfactory.

### SHOEING HORSES.

We have recently read Captain Cockerell's Report, issued by the War Office, on a new system of shoeing horses introduced by Monsieur Charlier, of Paris. As doctors are usually very fond of horses, and may be supposed to have their own opinions, we venture to give ours. No doubt many objections to the old system can be urged. The process adopted by farriers of cutting away the strong and constantly renewed horn on the sole of the foot appears to be physiologically incorrect. The shoes are almost always too heavy, are often badly placed, and contain too many nails. It has often occurred to us that some plan should be devised for fixing the shoe in such a way that it could be readily removed or replaced. Farriers will no doubt ridicule the idea of taking off a horse's shoes, like those of a man, when he goes to bed; but however novel the idea may be, it is, we are convinced, anything, but ridiculous in principle. Let it be granted that nature has constructed the feet of the horse on a plan very different from those of his rider; but no one, unless he were intoxicated or mad, would voluntarily think of sleeping in his boots. A dead weight of iron, through which the foot sustains a series of incessantly repeated concussions during the day, can have no other effect than that of causing an unnecessary expenditure of force with a commensurate amount of fatigue; and the comfort of the animal, as well as the requisite growth and development of the foot, which have to take place during periods of rest, cannot be properly accomplished when heavy iron shoes are constantly maintained upon it.

We nevertheless do not see any plan of doing away with nails to fix the shoe to the foot; but if they must be employed, they need not be misused as they generally are. Horse-shoeing may be best compared with man-shoeing. Man and beast both suffer; but the former has made an advance lately, in consequence of his being able to express his feelings pretty loudly to his shoemaker, and insist on being properly and comfortably fitted.

We have considered M. Charlier's theory from the time it was first promulgated, and we confess we are not convinced that its great superiority is such as to demand its adoption. If the ordinary horse-shoe be studied in connexion with the foot of the animal it is intended to fit, the shoe will commonly be found to be wrong in the following particulars:—It is made too narrow at the fore part, and too wide at the back. It is fixed with eight nails, extending all round, and confining the heel; while the tender parts of the foot are left exposed and fitted to catch every sharp stone. The shoe ought to be rounder than that made by farriers, and secured by five, or at most six, nails round the toe. Good fitting does more to hold the shoe on than the nails; but this gives the smith more trouble, and he finds it easier and cheaper to drive in a lot of nails all round, and does so. M. Charlier is right, we think, in deprecating the cutting away the frog, and this need not be done with ordinary shoes more than with his; but cutting and trimming makes the foot look neat, and therefore grooms and smiths like it. It is very probable that the best, easiest, and safest form of shoe would be something between the Turkish round plate with a hole in its centre and ours, because what the horse misses in the ordinary shoe is a support for the heel, on which the weight of his body rests, and the elasticity of his action depends. This class of shoe, called a bar-shoe, clumsily made however, is frequently used with horses when they have weak heels or corns, and it is found that they can work well in such a shoe when they cannot in one of the common form. There is, however, a strong feeling against it, because it is customary to suppose that a horse is unsound which wears shoes of this description.

## THE WOUNDS PRODUCED BY THE CHASSEPOT BULLET.

PARAGRAPHS have from time to time been making their appearance in the public journals as to the effects of the Chassepot bullet and the enormously disproportionate size of the exit as compared with that of the entrance wound. Our readers will no doubt remember that these statements were based upon experiments made with this weapon at the camp at Lyons on the bodies of dead horses. We have been favored by Dr. Gason, of Rome, with information as to the effects produced by this bullet at Mentana in November last, which cannot fail to prove highly interesting at the present time; and Dr. Gason's observations are the more valuable on account of their being based on the personal experience of a skilled professional observer.

It would appear from the reports from the camp at Lyons that the bodies of dead animals were used for the experiments, and it was even alleged by some that those of dead men had been similarly employed; if so, it is a practice which we are told is not altogether unknown in French history. Be this as it may, the wounds on the dead bodies of men or animals are not, for several physiological reasons, identical with those inflicted on living subjects; and the difference in their appearance was remarked by Dr. Gason after the battle of Mentana.

The projectiles used by both combatants in that engagement was principally the round ball, two sizes of the Minié, and the Chassepot ball. The lightness of the Chassepot firelock and its loading at the breech caused a far greater proportion of wounds in the upper part of the body than was the case in those wounded by balls from the muzzle loaders. The entrance made by the Chassepot ball was very small; the exit not much larger. We have the authority of Dr. Gason for positively asserting that among the cases brought into the hospitals in Rome there was not one where the wound produced by the Chassepot bullet bore any proportion to that mentioned in the report from the camp at Lyons—that "the exit was as large as a person's two fists." There was much less effusion of blood beneath the skin than in wounds by the round ball or Minié. The long bones were more frequently split. The immediate effects of the Chassepot were more fatal; but the ulterior effects less severe and fatal in wounds produced by the Chassepot than in those of the round ball or Minié. To no other cause, says Dr. Gason, can he attribute the greater fatality and more numerous amputations that occurred in the Military Hospitals at Rome among the Papal troops than among the Garibaldians. The former were naturally supplied with the better accommodation, and had as good medical attendance as it was possible; whereas the Garibaldians were lodged in a much inferior building, and were overcrowded, and the attendance was supplied by surgeons not accustomed to gunshot wounds. This was occasioned by the exceptional state of affairs, and the authorities not being prepared for so severe an engagement. The expense was borne by the Civil Hospital of Santo Spirito, with the exception of a comparatively small hospital, where the expenses were met by private subscriptions. Both parties might have been lodged in a more healthy situation than in Rome—close to the field of battle. The external hæmorrhage was greater in wounds produced by the Chassepot ball than by any other form of projectile; and in those places where the Italians fell when struck by it there were large pools of blood. The Chassepot bullet is one inch long, blunt pointed; its base, the broadest part in circumference, is half an inch in its diameter. Its weight is six drachms and a half.

### SENATOR NELATON.

SINCE M. Nélaton's appointment to the Senate it has been made a question whether he will relinquish his profession. Some of our contemporaries have quietly settled the point by observing that the sacrifice has been required from him, and that thus the Emperor's compliments to Science are of a doubtful and unsatisfactory nature. This is simply a mistake; and our comments on a recent occasion upon M. Nélaton's appointment retain their full sense and value. There is nothing whatever to lessen the gracious character of the Emperor's determination. No condition has been pressed upon M. Nélaton, and he is perfectly free to act as he chooses. The profession in France has, therefore, every reason to be proud that this distinction has been conferred in such circumstances upon one of its most worthy members. Indeed, the very manner in which M. Nélaton's nomination which was made known to him shows beyond a doubt the absence of any such intention from the mind of the Emperor. Before the 15th of August it was a current belief with the public that M. Nélaton would be called to the Senate, but the celebrated surgeon himself had personally no assurance upon which he might ground any such ambition. On the 14th of August he was in his consultation room, when a courier arrived, and handed a letter from the Prince Imperial. The young Prince had written to say that he knew his doctor had just been named a Senator, and that he was glad to be the first to announce the event. The delicacy of such a proceeding needs no comment. M. Nélaton being thus free to act as he desires, it is not probable that he will of his own accord relinquish his profession. There are several reasons why he should not. It would, in the first place, be a sort of avowal that there is some reason in the absurd prejudice which had until now precluded the active members of his profession from enjoying any elevated political position. It would, in the next place, unnecessarily deprive the public and profession of the assistance which may be derived from his long experience and recognised ability. There is one more reason which the new-fledged Senator would doubtless weigh well before arriving at any such determination. Since the death of Velpeau, Jobert, Trousseau, Michon, and Rayer, his practice has taken an unlimited extension, and is now worth, it is said, upwards of 500,000 francs a year—half a million of French money. Really it would be asking too much of the celebrated surgeon to abandon so rich a field, even if it be for the sake of enjoying the *otium cum dignitate* of a seat in the Imperial Senate. We may therefore safely assert that M. Nèlaton has not, as it was wittily remarked by a French contemporary, thrown his bistoury into the Seine on his way to the Senate, but that he will yet continue to handle it, much to his own benefit as also to that of his patients.

### STRYCHNINE IN BITTER BEERS.

THE startling announcement has recently been made that several of the large brewers are experimenting the properties of strychnine with a view of testing how far it is safe to use it in bitter ales as a substitute for hops. We earnestly hope that nothing so dangerous and scandalous is contemplated as the introduction into so valuable and wholesome a beverage as ale of such a deadly poison as strychnine. This is not the first time that the report has been circulated that strychnine is employed to impart the quality of bitterness to pale ale. Some six or seven years since a similar report was promulgated and spread far and wide through the columns of the press. At that time the subject was deemed of sufficient importance to demand a searching inquiry on our part, the result of the special inquiries and investigations then made being to demonstrate that there was not at that time the slightest foundation for the report in question. Now that the statement that strychnine is about to be employed in the manufacture of bitter beer has again obtained currency, it is once more imperative that steps should be taken with a view to ascertain whether the announcement rests on any sufficient foundation.

Hitherto it has been constantly alleged that our pale and bitter ales are the purest products which it is possible to obtain from malt and hops and that these, of the finest quality obtainable, together with pure spring water, constitute their only ingredients. It is to a firm belief in the truth of this statement, on the part in the first instance of the medical profession, and subsequently of the public, that the extraordinary popularity of pale ale is to be attributed. So great has been that popularity that pale ale may be said to have become the national beverage. Now only let this faith on the part of the profession and the public be broken, and there will speedily be an end to the present enormous consumption of that description of malt beverage.

Strychnine is not only one of the most deadly and subtle of poisons, but it also possesses the property of becoming, even when administered in minute doses, stored up in the system—in a word, it is "cumulative," so that after a time, however small the doses originally given, the effects, sometimes poisonous, of large doses may be produced. The brewers, we trust, are but libeled in this case: but if it be not so, let them beware how they tamper with a deadly substance like strychnine, and at the same time with the health of the public. Fortunately the tests for strychnine, even in the minutest quantities, are perfect and conclusive, so that the practice of adding this singular poison to beer, if really adopted, will not be permitted to continue without exposure and punishment. We may mention, in conclusion, that the addition of strychnine to ale would be an infringement of the Act to prevent Adulteration, and would therefore come under the operation of that Act.

### THE SUPPOSED INFLUENCE OF PETROLEUM OVER MALARIA.

WE have received some information as to the unusual good health and immunity from malarious disease of the imported laborers at the petroleum works at Makoom, near Jeypoore, in Upper Assam. It appears that Assistant-Surgeon White, of the 44th Regiment Bengal Native Infantry, in medical charge of troops, and Civil Surgeon Dihooghur, have officially directed attention to this subject. They made it an especial point of inquiry in consequence of the extreme unhealthiness for which Makoom has always been notorious. The Sepoy regiments lost so many men from malaria that the post was taken over by the police about four years ago; and it has since been found no less deadly to the Bengalees and Hindustanees of that force, so that only men who were either Dounainers or Cacharries—both races who are known to thrive rather than otherwise in malarious localities—were sent to the place. As these Bengalee laborers could not be so well cared for as the Sepoys, it was expected that the mortality among them would have been something appaling. Assistant-Surgeon White was surprised, however, to find that only one death had occurred in two years out of a population of over sixty persons. The infants born in the place all looked strong and healthy. This immunity from malarious diseases he attributes to the protective influence exerted by the gases given out by the petroleum against the effects of jungle miasma. Ulcers or sores on the extremities, which are among the greatest afflictions of the imported laborer in Assam, have likewise invariably healed rapidly in the laborers employed at the petroleum works.

The question is one of some political and economical importance as regards the future of the district. A fearful loss of life among immigrant laborers has been incidental to every other branch of European enterprise. Colonel Hopkinson, the agent to the Governor-General N. E. Frontier and Commissioner of Assam, has, we believe, directed the attention of the Bengal Government to the statements recorded by Assistant-Surgeon White. Petroleum workings are now conducted pretty well all over the world, and probably at some localities as malarious as Makoom. Pennsylvania, Trinidad, Seyssel, the Burmese petroleum wells at Renhangyoung, and other places might be mentioned, where evidence might possibly be obtained as to the asserted prophylactic effects of petroleum. A case has been made out for investigation. We should, however, have been glad to be informed of the races of which the petroleum working coolies are composed, and whether these are as susceptible to the action of malaria as Sepoys for example. It is said that these coolies are Dhanyars, who are believed to be as proof against the action of malaria as, according to Dr. White, the Cacharries are.

## DEATH FROM THE USE OF ARSENIC BY A CANCER-QUACK.

We are not insensible to the force of the reasons for giving quackery plenty of rope. Scientific medicine can afford only too well to smile at those notions of personal liberty which permit one subject to give, and another to take, advice in vital matters where both parties are, in the nature of the case, incapable of having a right judgment. A singular illustration of the liberty of subjects has just occurred in Scotland. A certain Mrs. Landess, of Paisley, was recovering in March last from an abscess of the breast, consequent, apparently, on weaning her child, when she chanced to meet a man who, from his own account, had been cured of cancer of the ear by one Alexander Paterson. She immediately conceived the wish to see Paterson, and to try his practice. He came, and pronounced the stangs that Mrs. Landess had felt in her suppurating breast to be the symptoms of cancer, which he proceeded to attack heroically—that is to say, by first applying a blister to the breast, and then an arsenical ointment, which, according to the analysis of Professor Maclagan, was nearly half arsenic and half lard. Very naturally Mrs. Landess began to get worse. She had headache, vomiting and retching, great thirst, and the inflammation got worse and spread from the breast to the arm. She died in ten days. Arsenic was found in the various tissues and organs of the body. Professor Maclagan found no trace of cancer in the breast, and had no hesitation in saying that the patient had died of arsenical poisoning. The only defence set up for the "panel" was, that he had cured many cancers with this ointment, and that it had been laid on a little thicker than he ordered. The judge, Lord Ardmillan, said there could be no doubt that Mrs. Landess died from arsenic. But he summed up with great consideration to Paterson, observing most unnecessarily to the jury—"The Court is not here for the protection of the rights and privileges of medical practitioners; and a man, though not licensed, is not to be punished for culpable homicide unless the jury is satisfied that he acted culpably." He accepted the evidence of Paterson's cures, and ended a lenient address by the remark that "a mere mistake did not imply culpability." Fortunately the jury was firm in its perception of the guilt of such quackery as this, and returned a verdict accordingly, accompanied, however, with a recommendation to mercy. The "panel" was sentenced to four months' imprisonment.

We cannot but think that the judge in this case spoke much too lightly of the guilt of the quackery. The medical profession depends for its reputation on its own merits, and does not want the protection or the patronage of judges; but to have such conduct and such crass ignorance as Paterson's associated with such ideas as "a mere mistake" is very like an undue protection of quackery.

## ANATOMICAL TEACHING.

In the current number of the *London Student* Mr. Edward Bellamy, F.R.C.S., of Charing-cross Hospital, discusses the present mode of teaching anatomy, and compares it with that in vogue in ancient times, and up to the present century. He quotes from Dr. Struthers' "Sketch of the Edinburgh Anatomical School," the ten days' course of lectures which in 1704 formed the usual method of imparting anatomical knowledge, and contrasts it with the laborious minuteness required in the present day. In London the practices of the several schools vary very much; in some the tutorial element being carried almost to excess, whilst in others the student is made to find out even the minutest branch of nerve for himself, to the detriment of his general anatomical knowledge. It certainly appears to us that the time has come for the abolition of the absurd plan of dividing the systematic lectures artificially into separate sections upon osteology, myology, splanchnology and the vascular and nervous systems; for when the bony framework is once comprehended, a dissection from the surface is obviously a more natural method than the one ordinarily pursued,—of clothing the bones with muscles, and at some remote period of the course describing the all-important arteries and nerves in relation with them.

Mr. Bellamy thus expresses his opinion of the methods of teaching, with which we fully agree:—

"Much has been said on the comparative merits of teaching by lecture and the 'colloquial' teaching, as pursued by tutors or demonstrators, but it is of great importance that these two systems be well combined. Without well-conducted lecturing, there would be obviously a want of system; and of all things, system is requisite in anatomy. Although we have been speaking of the help needed by the student, it is of the utmost importance that he makes out for himself, as far as he can, the various structures under examination, and not rely too much on help; careful and close reading whilst dissecting from some good text-book is apt sometimes to be overlooked by him, and thereby not only does he not gain as accurate a knowledge as he should, but the teachers have far more to do than their share of the work. With regard to the practical knowledge gained by the student during his anatomical course, there can be no doubt but that it is obtained by the *tutorial* system of the dissecting-room; that is, of course provided the teacher of practical anatomy makes strict and personal examination a chief part of his duties."

## THE SCISSORS VERSUS THE RAZOR.

NATURE has her own ranks, and in the matter of beards she divides her upper from her lower classes. A man with a fine beard, whatever he may be, never looks like a snob; while the beards of some men are so thin and poor that they take away rather than add dignity to the face. Let the last continue the use of the razor by all means; but we commend the scissors to the first. Anyone accustomed to travel, and particularly in the East, must have remarked the air of nobility and gravity which a fine beard gives. But we need not go so far as the East. The contrast is striking between a regiment mainly composed of bearded veterans with bronzed countenances, which mark its recent return from foreign service, and the neat clean-shaven physiognomies of the men of another regiment. A manly dignity characterises the former, which the latter do not possess. If beards, as a rule, add so much to the appearance of men, giving what may be termed a fine presence, we may add that a beard serves many useful purposes as regards health. It protects the throat, mouth, and delicate vocal organs from cold, and guards these and the lungs against congestion and inflammation. The rules of society are very arbitrary, and we follow them very sheepishly. When it is considered, however, that we protect our bodies by artificial coverings, it appears ridiculous that we should rob ourselves of a natural protection at the cost of some pain and discomfort formally inflicted every morning. It has been sometimes urged that beards do not consort well with our method of dress, the white shirt and collar and the coat; but there is no reason why we should follow the fashion of the East, or make ourselves appear like Hebrew patriarchs. The beard may be trimmed by the aid of scissors, and preserved of moderate length. The subject was lately noticed in the *Army and Navy Gazette*, and it was properly urged that men like soldiers, who have to serve by turns in a tropical climate and through a Canadian winter, ought to be allowed to wear beards, and to maintain them of such a length as to preserve their protective influence without any sacrifice of cleanly personal appearance. If people to whom Nature has given beards would only wear them, they would have fewer attacks of hoarseness, catarrh, and bronchitis to complain of than at present.

## TYPHUS OF THE PERCH.

UNDER the designation of "typhus," Drs. F. A. Forel and G. du Plessis, of Geneva, describe a very deadly epizootic, which prevailed among perch in the Lake of Geneva in 1867, and which recurred among the same class of fishes inhabiting one of the tributary streams of the lake in the course of the present year. The term "typhus would seem to have been applied to the malady by those gentlemen because they found in the blood of the sick and dead fishes microzoid parasites, vibrions and bacteria, similar, they believe, to the microzoid bodies found in the blood of human typhus patients. The epizootic broke out among the perches in the Lake of Geneva in May, 1867, and continued throughout that and the subsequent year; and the dead were to be numbered by hundreds of thousands. The disease was as fatal in May, 1868, among the young perches in a stream (Ruz des Ouates) which flows into the lake about a league below Orbe. The authors describe the epizootic as having a stage of invasion, persistence, and decline or agony. But this systemic arrangement is rather a matter of inference than observation. When the disease is developed, the fish is stupid and indifferent, lying at rest among the vegetation in the shallows, and it may be seized with the hands. The authors describe this state as one of "adynamia and coma," and remark that no convulsive moments were observed. In many cases "a yellowish, bilious diarrhœa" was noticed; in others, sanguine injection, often strongly marked, of the nostrils, lips, and base of the fins; occasionally even slight hæmorrhage at the points of extreme injection. Whitish spots, also, were frequently seen scattered over the surface of the body, irregular in form, and caused by a raising of the epidermis. Gangrenous spots also occurred at the base of the fins, and the tail was covered by a white fungus. The unaffected portions of the surface retained, nevertheless the normal brilliancy of coloring. Post-mortem examination showed congestion of the brain, the intestinal canal below the choledic duct distended with a yellowish liquid which swarmed with bacteria and vibrions, and in some instances, in which the muscles of the abdomen were stained of a yellow color, bacteria were found abundantly between the primitive fibres. For the rest, the chief changes were discovered in the blood. These consisted in a general alteration, dissolution, and an absence of clot; changes in form of the globules in different degrees, and the presence in the serum of bacteria and vibrions.

### MEDICAL CORONERS.

NOTWITHSTANDING all that we have urged to the contrary, the *Solicitor's Journal* still remains convinced "that, *cæteris paribus*, the legal mind affords the making of a better coroner than the medical." Without undervaluing the "indirect benefits" resulting from coroner's inquiries, our contemporary holds that "the *primary* direct object of the inquiry is the first consideration, and *à priori* the man whose education and avocation have familiarised him with the rules of evidence and with judicial inquiries conducted by the best judges whom the nation has at its disposal, is more likely than anyone else to conduct a judicial inquiry himself so as to secure the attainment of the direct object, and the indirect benefit to boot. We believe that in a trial at *Nisi Prius*, involving questions upon which the opinions of medical experts have to be taken, the truth is far more likely to reach the ears of the jury, acting under the presidency of one of our common-law judges, than if the bench were occupied by the most profoundly learned member of the medical profession." Although we may be unable to convince the legal interest against its will that medical coroners are indispensable if the full protection of the office is to be assured to the public, we still confidently trust to the good sense of the community at large for the adoption of our views whenever a decision of the kind has to be made. The *primary* object of the coroner's inquiry is to determine the exact cause of death and how it was brought about; the apportionment of blame, where such arises, is always the subject of a distinct subsequent legal investigation. That the first should be determined under the direction of a medical judge, as the second is invariably determined by a legal judge, appears to us to ensure the ends of justice far more satisfactorily than if both courts were under the direction of lawyers alone.

### SURGERY IN THE MIDDLE AGE.

IT would appear that the health and lives of the citizens in the fourteenth century were well looked after by the authorities. In the "Memorials of London" several cases are mentioned in which the treatment to which wounded or sick persons had been subjected was examined by competent persons, and their decisions given thereon. Thus, in the records of the City in 1354, we find an account of such an inquisition given in the following words:—"The Prior of Hogges, Master Paschal, Master Adam de la Poletice, and Master David de Westmerland, surgeons, were sworn before the mayor, aldermen, and sheriffs, to certify them as to a certain enormous and horrible hurt on the right side of the jaw of Robert de Sheue, appearing: whether or not such injury was curable at the time when John le Spicer, of Cornhulle, took the same Thomas under his care to heal the wound aforesaid. Who say upon their oath, that if the foresaid John le Spicer, at the time when he took the said Thomas under his care, had been expert in his craft or art, or had called in counsel and assistance to his aid, he might have cured the injury aforesaid; and they further say, that through want of skill on the part of the said John le Spicer, the said injury under his care has become apparently incurable." Such a kind of inquiry at the present day would be deemed unfair and unsafe; but it gives evidence of the jealous care of our forefathers in protecting the citizens from incompetent persons practising the art of surgery. The following quotation from the "Memorials" affords another instance of this:—"On Monday, the 10th April, 1390, Master John Hynstok, Master Geoffrey Grace, Master John Brademore, and Master Henry Suttone, surgeons, were admitted in the chamber of the Guildhall of London, before William Venour, mayor, and the aldermen, and sworn, as master surgeons of the city aforesaid, well and faithfully to serve the people in undertaking their cures, taking reasonably from them, &c., and faithfully to follow their calling, and faithful scrutiny to make of others, both men and women, undertaking cures, or practising the art of surgery; and to present their defaults, as well in their practice as in their medicine, to the aforesaid mayor and aldermen, so often as need shall be. And, further, that they shall be ready, so often as they shall be warned thereto, to examine persons hurt or wounded, and others, &c., and give faithful information to the officers of the city aforesaid as to such persons hurt or wounded, and others, whether they are in peril of death or not; and all other things touching their calling faithfully to do."

### THE MEDICAL ASPECTS OF A FAST LIFE.

WE do not mean a life of excitement and dissipation or a disregard of moral considerations, but that species of go-aheadism which we see in its freest development, perhaps, among the Americans. In no country in the world is the struggle for gain more actively carried on than in the United States, and those who have watched the habits of the commercial classes in London and New York declare that the industry of the former is as child's play compared with the unremitting energy of the latter. The number of New York lawyers and merchants who take what Englishmen would call a vacation is said to be exceedingly small; and, according to the correspondent to the *Daily News*, they send their wives and families to the seaside or mountains, where they join them at night, or run down by rail from Saturday to Monday. The consequence of all this high-pressure business energy, combined, as it frequently is, with a considerable amount of excitement and anxiety, and a devotion to iced drinks and whisky, is an increased occurrence of cases of nervous exhaustion, often ending in paralysis or lunacy. It will be remembered that during the period of extreme heat at New York there was a very unusual prevalence of heat-apoplexy, and if, as we are informed, ardent spirits are consumed there very much as beer is in this country, we need not be surprised at it. As the late Sir Charles Napier remarked, in reference to the maintenance of his own health, the heat of India found no ally in the alcohol in *his* brain. The moderate consumption of bitter beer and the enjoyment of a thorough holiday in the country or at the seaside for some weeks by our city merchants are undoubtedly much more favorable to the maintenance of health and life than the habits of their hardworking, energetic cousins of New York.

### A FEW HINTS FOR STUDENTS ON THE MICROSCOPE.

The use of the microscope has become of such importance in the investigation of disease, and is so requisite for the right comprehension of many anatomical and physiological points, that we need make no apology for saying a few words that may assist the student in obtaining what is required. He will find he can purchase a very useful instrument at any respectable maker's for from three to five guineas. This should include a good stand, with coarse and fine adjustment, and two object-glasses—an inch and a quarter-inch. The other materials he will need are a little chromic acid, methylated spirit, and glycerine, to which an equal quantity of concentrated solution of gum arabic has been added. A glazier will, for a few pence, cut him a dozen glass slides, free from flaw, and with a few thin covers, a pair of scissors, a sharp razor, and forceps, his equipment will be complete enough for all ordinary purposes. If he wish to make a section of any of the softer textures as of the skin or mucous membranes, he may pin them out on cork, and allow them to dry. Then, on making fine sections, and the addition of the drop of the glycerine and gum solution, the details of structure soon become apparent. Other textures, like the spinal cord, glands, &c., may be macerated for a day or two in dilute methylated spirit, then in chromic acid, the strength of which is gradually increased till it assumes a straw-yellow color, when, in the course of a few weeks, the parts will be found to have assumed a kind of leathery hardness, that enables most beautiful sections to be made from them with the greatest facility. The more advanced student may practise rubbing down sections of bone and teeth, or endeavor to inject some small animal, as a mouse; but this requires more extensive apparatus, and he should refer to one or other of the several excellent works devoted to the use of the microscope.

### DR. MILROY ON CHOLERA.

A paper in the *British and Foreign Medico-Chirurgical Review* for July, by Dr. Garvin Milroy, on the "Geography of Epidemic Cholera in 1866–67," shows how much we have yet to learn before we can explain all the erratic and migratory movements of epidemic cholera. It is chiefly valuable as showing the imperfection with which the particulars of outbreaks are observed even in places and countries where we should expect neither money nor pains to be spared to arrive at the facts on this most important question. For example, Dr. Milroy says: "No attempt to record the progress and course of the pestilence in America has, as far as I am aware, been made." The introduction of the disease to Stettin, without any discoverable traces of importance, is another illustration in point. A very remarkable fact noticed by Dr. Milroy, is the comparative mildness of the morbific agency in the last epidemic along the whole east coast of England, notwithstanding constant intercourse with infected places in North Germany and Holland. Dr. Milroy says: "We seem to be as yet quite in the dark when we seek to account for the erratic or migratory movements of cholera. Human intercourse alone, or communication with infected places, whether *internally* between different parts of England, or *externally* with foreign countries, does not suffice to explain the irregular and capricious extension or dissemination of the poison."

### APHORISMS FOR BATHERS.

The committee of the Royal Humane Society have issued the following rules for the guidance of bathers. They were framed by Dr. Christian and Dr. Sieveking. These rules, which are sensible and practical, cannot be too extensively known.

"Avoid bathing within *two* hours after a meal.

"Avoid bathing when exhausted by fatigue or from any other cause.

"Avoid bathing when the body is cooling after perspiration; but—

"Bathe when the body is warm, provided no time is lost in getting into the water.

"Avoid chilling the body by sitting or standing *naked* on the banks or in boats after having been in the water.

"Avoid remaining too long in the water. Leave the water immediately there is the slightest feeling of chilliness.

"Avoid bathing altogether in the open air if, after having been a short time in the water, there is a sense of chilliness with numbness of the hands and feet.

"The vigorous and strong may bathe early in the morning on an empty stomach.

"The young, and those that are weak, had better bathe three hours after a meal. The best time for such is from two to three hours after breakfast.

"Those who are subject to attacks of giddiness and faintness, and those who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser."

### ANTISCORBUTICS.

The operation of the Merchant Shipping Act 1867, has given an impetus to the manufacture of various kinds of antiscorbutics for use at sea. We took occasion lately to make mention of a preparation introduced by Messrs. Rose and Co. of Leith, which consists of lime- and lemon-juice treated with a small percentage of sulphurous acid. It is asserted by the members of the above firm that juice prepared in this way will keep for any length of time with all its antiscorbutic properties unimpaired, and that those properties are in no wise diminished by the addition of sulphurous acid. Messrs. Rose have submitted this mixture to the Board of Trade, and samples have been examined and reported upon by the medical officers of that department. As, however, no practical experiences of this preparation as a preventive of scurvy can at present be recorded, the Government officials were not justified in recommending its use in the mercantile marine. We are informed that the authorities at the Admiralty have consented to receive samples of the mixture which will be placed on board some of her Majesty's ships on foreign stations, so that its prophylactic and conservative properties may be fairly tried. There is no doubt whatever that the present system of fortifying lime- and lemon-juice adopted by the Board of Trade under the last Merchant Shipping Act is, if properly carried out, all-sufficient to ensure the preservation of those articles. There is good reason to believe that the alcohol used is in itself an antiscorbutic and it is certain that its flavor and aroma are grateful to the men. But this system, as legalised in the Act above quoted, is still on its trial; and until very precise data as to its usefulness have been gleaned, the authorities at the Board of Trade would act unwisely in countenancing the use of any antiscorbutic about which no positive information has been obtained.

### THE CATTLE PLAGUE IN AMERICA.

If our readers have not already done so, we advise them to read the speech recently made by Lord R. Montagu, in which he detailed the facts connected with the nature, rise, and geographical progress of the cattle disease in America. In its highly contagious nature, the great rapidity of its spread, and speedily fatal character, we recognise the same characters that marked the rinderpest as we experienced it. The disease is said to be indigenous in Texas. It travelled in an incredibly short space of time to New York and Canada; and its progress was distinctly traced into Chicago, Illinois, Pittsburgh, Pennsylvania, and the State of New York, and from Illinois by the Great Western Railway to Buffalo in Canada, being apparently carried by some cattle which had pastured on land where some Texan cattle had grazed.

The measures adopted in America and Canada, with a view to the prevention of the spread of the disease by contagion were of the most radical and rigorous description. What all the concurring conditions are which render a morbid virus so ready to extend over a vast area of country at one time as compared with another—what, in short, gives rise to the epidemic prevalence of a disease—it is not easy to determine; but contagion, using the term in its widest signification, appears to be an essential one. When we read of healthy cattle being attacked which had crossed or followed the track of diseased beasts, and of their conveying infection to other and distant localities, we are forcibly reminded of some of those occurrences which occasionally take place in India in regard to cholera. It has happened again and again that troops on the march have been stricken with that disease, which they have carried with them. Sometimes the mystery has been solved by the discovery of their having crossed a cholera track, or bivouacked on the site of an old camp. In the case of the Hurdwur pilgrims, men were attacked with cholera who had passed along the roads taken by the cholera-stricken pilgrims, without, however, ever having actually encountered them.

### ANIMAL VACCINATION IN BELGIUM.

This kind of vaccination, known as the Neapolitan, and introduced into France by M. Lanoix, has just received the saction of the Belgian Government. By a royal decree, an animal vaccine establishment is to be founded, the appointed director being M. Warlomont, who cordially took up the method after M. Lanoix's labors at Paris. In that capital animal vaccination found some opponents, and has not made such rapid progress as was at first anticipated, in spite of the very efficient support of Dr. Depaul, the head of the Vaccination Office of the Academy of Medicine of Paris. The matter hinges upon two questions,—Is animal vaccination as effectual as the same operation performed with lymph conveyed from one human being to another? Is it true or is it not true, that syphilis may be inoculated with the lymph used in the last mentioned manner? Independently of any other consideration, it would be a great boon, especially in case of an epidemic of small-pox, to have an abundance of healthy lymph ready at hand. Nay, in localities where numerous re-vaccinations were required, heifers might be largely inoculated, and an unlimited supply of lymph be at the command of professional men. Nor is it necessary, where animal vaccination is practised, to give up other modes of vaccinating: the population is large enough to support methods. The question rests mainly with the medical advisers of the Privy Council.

### POSITION IN IMPENDING DEATH FROM CHLOROFORM.

Every suggestion bearing upon the treatment of patients who exhibit alarming symptoms during the administration of chloroform is worthy of note. Dr. Holmes, in a short communication to the *Chicago Medical Examiner,* states that in several instances in which symptoms of fatal syncope made their appearance, he found that placing the patient with the head downwards on an inclined plane of about 40° restored the pulse at the wrist, and the color to the face. He mentions one case in particuler, whose "aspect was most appalling—the face and hands were cold and wet, the features pinched, muscles of the face relaxed, lids half open, and corneæ turned upwards." The foot of the table had not been raised fifteen seconds (the tongue having been withdrawn) before the pulse was again felt, and the breathing re-established. Upon restoring the patient to the horizontal position, however, the alarming symptoms reappeared; but the change in position, by raising the foot of the table once more, was followed by relief. Dr. Holmes holds that by far the larger proportion of cases of death by chloroform arise from syncope, and this may be overcome by "causing a column of blood to press on the vessels of the brain;" and he gives the preference to the altered position, as suggested, above galvanism, artificial respiration, or other means generally adopted to restore the patient. The whole body must be inclined, not the head and shoulders alone.

### THE SMALL-POX HOSPITAL AT SAN FRANCISCO.

We have received very unsatisfactory newspaper accounts of the management, or rather mismanagement, of this hospital. According to these accounts, the hospital is very much overcrowded; the nurses are inadequate in numbers, intemperate, and leave the patients over night to themselves. Two or three patients have been found dead on the floor in the morning; others have escaped in their delirium from the house. There is an almost daily use of the strait waistcoat; very few of the beds have sheets, patients lying on blankets and mattresses upon which other patients have died. A young Frenchman, in Ward No. 1, lay there with six other patients, of whom five died one after another. There is no resident medical attendant. A man was admitted on an error of diagnosis; he was retained fourteen days and then allowed to go, leaving the clothes which he had brought with him; in seven days he returned having the small-pox; a strait jacket was applied, and he died. It may be that there is another side to these facts, and we must admit that in the accounts from which we quote the facts are arranged and stated somewhat rhetorically, not to say sensationally. But if the statements be true, and they have not been denied, they are very shocking, and discreditable to a community of 150,000 people. The hospital is six miles distant from the town.

### THE DISTRIBUTION OF HEART DISEASE IN ENGLAND.

In an appendix to a little *brochure* with the rather sensational title of "Hurried to Death," in which sufferers from Heart disease are again cautioned as to the danger of hurry and excitement, Mr. Haviland has entered into the question of the geographical distribution of heart disease in England and Wales, and argues that the proportion of deaths from cardiac mischief varies in a uniform manner with latitude, longitude, and aspect of the maritime and physical character of localities. It is asserted that the greatest number of deaths from the cause stated occur in the southern coast counties, and the least in the western parts of England. The northern rank second, and the eastern third. It further appears that the mortality increases as we trace it from the sea-girt island (Wight) to the land-bound midland counties, showing the value of sea air in the class of disease under notice. The southern part of England has most heart disease, it is asserted, because it receives the least amount of sea air; the English channel being narrow, and the land air flowing in from the Continent. We are unable to follow the matter further at present. If Mr. Haviland's observations turn out to be correct, they will open up a new field in the therapeutics of cardiac disease.

### THE CLINICAL THERMOMETER.

The importance of ascertaining and watching carefully the variations of temperature in disease is daily becoming more apparent. Hitherto one of the main drawbacks to the more general use of the thermometer by practitioners has been the fact that sufficiently portable instruments have not been obtainable. This difficulty is now to a great extent overcome in the clinical thermometer devised under Dr. Allbutt's direction, and made by Harvey and Reynolds, of Leeds. The instrument does not differ from others, perhaps in accuracy, though it at least equals them, each instrument being tested by a standard, verified from time to time at Kew, before being issued. Its portability is the great thing. The thermometer is six inches in length, and is readily carried in the pocket, it is self-registering, and can be read off at leisure. The important gain is this, that the practitioner may always carry the thermometer about with him; and thus he finds that he has a valuable aid not only at ordinary but at many chance times. A useful chart for daily noting the main points in physical diagnosis has also been devised by the same firm. The thermometer is inexpensive.

### THEATRICAL SURGERY.

The contrivances of the stage are certainly ingenious, but we doubt if they have yet reached the point of ingenuity lately witnessed on the boards at Preston. A performer on the high trapeze made an unlucky spring and fell from a height of thirty feet to the stage. By the fall he "put his neck out of joint." Odd as the injury was, the treatment bestowed on it was odder still. A gentleman amongst the audience (we are not informed at what school he had qualified) volunteered his assistance, and was, it seems, "successful in putting the neck right again." The patient now lies in a precarious state, but whether from the effects of the injury or of its treatment does not appear. The affair is a serious one—the reduction of such a dislocation being something more than a *reductio ad absurdum.*

### HYDROPHOBIA.

Mr. Holmes Coote writes to *The Times* in confirmation of what is already known to the profession, though still, it seems, unknown to Sir Richard Mayne on the subject of canine madness. The disease called hydrophobia is but little understood, and is a far rarer occurrence than is popularly believed. In the course of thirty-five years' observation at St. Bartholomew's, Mr. Holmes Coote saw only two cases of it; and one of these so far belied the vulgar pathology as to the patient's repugnance to water, that the sucking of ice gave him the greatest relief. The cruel and utterly irrational practice of muzzling dogs in hot weather is scouted by every scientific man; and if it is resorted to again, we should recommend its being taken up by the Humane Society. Tetanus, under which the phenomena of hydrophobia must be classified, is a sad affliction but we question if that form of it popularly known as lock-jaw would not be salutary in the case of those persons who are continually calling out "Mad dog!" and urging the executive to its present needless and cruel precautions.

### ACORNS.

A letter appeared lately in *The Times* as to the possibility of utilising the crop of acorns, which happens to be exceptionally large this season; and, in answer, some correspondents pointed out the medicinal virtues of acorns, and the power they exercised over diarrhœal disorders in men and animals. We must always make a few deductions from the enconiums passed on new remedies, particularly the eeoniums of non-professionals. Any astringent properties which acorn meal possesses are to be attributed to the presence of vegetable acids, such as tannic and gallic acids—remedies as old as the hills for diarrhœa and dysentery. Pigs will eat acorns, as everybody knows; but if some easy process could be devised by which the bitter principle could be extracted from horse-chesnuts and acorns, and these natural products made palatable and available for the food of man or beast, the man who made the discovery would be rendering a very great service. The idea has naturally often been suggested, but never acted upon. Why the name of horse-chesnuts should have been given to an object which the horse abominates as a food we do not know.

### HAIR-WASHES.

It is only right to refer to a source of possible disease which is peculiarly widespread just now, and against which the public should be cautioned. At the present time there is quite a rage for the use of hair "washes" or "restorers," which, whilst the charge of their being "dyes" is indignantly repudiated, yet in a short time "restore" the color of the hair. The active agent in these washes is of course lead. In the majority of cases, probably, a moderate use of such a lotion would be unattended with mischief; but it is worth remembering that palsy has been known to be produced by the long-continued use of cosmetics containing lead. Of the thousands of persons who are now applying lead to their scalps, there will doubtless be some with an extreme susceptibility to the action of the poison, and these will certainly run no inconsiderable risk of finding the "restoration" of their hair attended by loss of power in their wrists.

### PROFESSORS VIRCHOW AND ROBIN.

These two great rivals in histology had until now contented themselves with calmly and scientifically propagating their doctrines in their respective countries. But the German professor, stung to the quick by an irritating attack by M. Robin in a lecture delivered at the Faculty of Paris, has now openly declared war against the French histologist, and boldy carried the scene of action into his adversary's own camp. In a series of articles published in the *Gazette Hebdomadaire*, under the telling title of "Plaidoyer pro domo sua," M. Virchow defends his opinions with considerable warmth, and calls upon M. Robin to do battle. Doubtless M. Robin will not be slow in accepting the challenge, and it will be interesting to watch the contest between the two celebrated representatives of the French and German schools of histology.

### THE CÆSAREAN SECTION BY A CURATE.

A curate in a country town of Belgium, Boom, has performed the Cæsarean section upon one of his parishioners, in order to baptise her unborn child. The curate knows that he has transgressed the laws of the land, but he avers that he has the authority of his ecclesiastical superiors, and he relies confidently upon the woman of his parish to pay the fine to which he has become liable. It is, we fear, useless to argue against priestliness and sacramental theology, especially if backed by "the women of the parish;" but we should be glad to hear that the priest had been cured of his excessive faith in himself and his *opus operatum*, by being left by "the women of the parish" to pay the fine himself. It would not appear to be the first time that he has assumed surgical functions. The case discloses serious medical tendencies of the sacramental theology, against which we must enter our early and emphatic protest.

### MEDICINE IN CALIFORNIA.

San Francisco has given birth to another medical journal. The first number comes to us under the title of the *California Medical Gazette*. It is excellently printed and arranged, and is a most promising addition to serial medical literature. The subjects treated are varied, and the more important show much activity of thought and work amongst the local practitioners. We would especially notice the papers by Dr. Shortt "On the Miasmatic Diseases of California," Dr. Scott "On the Enucleation of a Fibrous Tumour of the Uterus," Dr. G. R. Power "On the Accomodation of the Eye," Dr. W. F. McNutt "On Alcohol as a Dressing to Surgical and Traumatic Wounds," and Dr. A. B. Strut "On Carbolisation in Small-pox."

### EXCISION OF THE SCAPULA.

On Friday October 2nd, Mr. Sydney Jones removed, at St. Thomas's Hospital, the entire scapula, with the exception of the acromion. The disease was enchondroma, and the mass removed weighed nearly eleven pounds. Not more than from three to four ounces of blood was lost. We regret, however, to learn that the case terminated fatally on the fifth day, the patient having apparently died from shock.

*La Courier Mèdical* announces that in consequence of the numerous victims of homœopathic treatment, the Emperor of Russia has issued an ukase which prohibits the practice of homœopathy in any part of the Russian Empire, under pain of a fine of 500 roubles and two years' transportation to Siberia.

## Reviews and Notices of Books.

*On Asthma; its Pathology and Treatment.* By Henry Hyde Salter, M.D., F.R.S., F.R.C.P., Physician to Charing-cross Hospital, &c., Second Edition: Churchill and Sons. 1868.

The competition of the present day can scarcely be looked upon as altogether favorable to the progress of philosophy or the cultivation of letters. Able men—men of original minds—often publish before they have really digested the subjects about which they write, fearful lest another should forestall them; and many men, who are scarcely entitled to be termed able or original, publish old views with new faces—books, that is, with new bindings;—the form without the substance. The telegraph and railway have influenced the age in more ways than one. A craving for that which is new, an ill-concealed impetuosity and impatience of laborious investigation, as well as a tone of exaggeration as to the importance of every new thing because it is new,—these are some of the characteristics of the age in which we live. When we open a medical treatise, we ask ourselves,—Has the author possessed the necessary opportunities for studying his subject? Has he the requisite powers of mind and observation to make what he has to say worth the saying? And, lastly, does he say it so clearly as to remove all doubt that he really understands his own meaning?

Our readers, however, will have begun to wonder what all this can have to do with a work on asthma. Just this: that let a book be written on any subject, you like to feel that its author has deliberately examined, arranged, and weighed the facts in his possession, and that his theories are capable of embracing and explaining them. In both these respects we think the writer of this treatise has been most successful. Of course, in a second edition, it was not possible to write a new book if the views propounded in the first were true; and, as Dr. Salter intimates in his preface, the fresh matter—of which there is a considerable amount scattered throughout the volume in almost every chapter—has been the result of an enlarged experience. The mass of facts, represented by the tabulated cases, is very much augmented, their number having been increased from 44 to 223; and the 15 narrative cases in the appendix, selected by the author for the purpose of illustrating various points in the clinical history and therapeutics of asthma, serve to give as good and faithful a picture of the diversified forms of this disease as it is possible to afford in a description, however graphic and life-like. We need not enter fully into those chapters which deal with the various theories of the disease that have been promulgated from time to time, or the pathology, clinical history, varieties, etiology, and consequences of asthma,—for our readers have already had the opportunity of perusing the author's lectures thereon; but we must content ourselves with picking up, here and there, a few of the more interesting and instructive points. *Imprimis*, and very shortly, What is asthma? It is essentially and, with the exception, perhaps of a single class of cases, exclusively a nervous disease. It depends upon a spastic contraction of the fibre-cells of that unstriped variety of muscle of whose existence in the bronchial tubes minute anatomy has made us acquainted; the phenomena of the disease being mostly the result of an excitomotory or reflex action set up by the presence and action, either direct or remote, of an irritant affecting some part of the nervous system: the vice in asthma consisting, however, "not in the production of any special irritant but in the irritability of the part irritated."

The chapter in which Dr. Salter unravels the difficult phenomena of an attack and assigns an explanation of them on physiological and rational grounds, appears to us a clear and convincing piece of writing; and the same may be said of the physiological argument in which the purposes of bronchial muscle are discussed in relation to inspiration, cough, and the expulsion of matters from the bronchial tubes.

The delineation of the appearance of an asthmatic in the height of a paroxysm is as good a specimen of graphic description as the explanation of the muscular phenomena—the physique, voice, and spinal curvature—is of correct physiological reasoning.

In speaking of the hæmoptysis of asthma, the quantity of the blood being generally not more than streaks and patches mixed with the mucus, Dr. Salter, in a foot note, takes up the consideration of Dr. Johnson's views as to the arrest of the pulmonary circulation not being in the capillaries, but in the small arteries behind them. If this be correct, it follows that the capillaries must receive less blood than usual, and cannot be the seat and source of apnœal hæmorrhage. Dr. Johnson gives the following ingenious explanation:—"Since, at whatever point in the pulmonary circulation the arrest took place, it would retrograde upon the systemic venous system, and since the bronchial veins are tributary to this system, it would ultimately retrograde upon them, and thus congestion and partial stasis would be produced, first of the bronchial venules, and then of the bronchial capillaries; and it is to rupture of these last vessels, and not of the pulmonary capillaries, that he would attribute apnœal hæmoptysis." This, according to Dr. Salter, explains both the source of apnœal hæmoptysis and the invariable sequence of bronchial mucous exudation upon any form of protracted partial apnœa; for that which would produce bronchial hyperæmia, even though passive, would necessarily produce an increase of the bronchial secretion. At pages 160 and 161 Dr. Salter has some further observations as to the seat and mechanism of the pulmonary stasis of apnœa in reference to Dr. Jonnson's teaching.

The principal additions to the present edition are, however, to the therapeutical part; as, for example, the therapeutical effects of chloroform, administration of alcoholic stimulants, and the treatment of asthma by iodide of potassium. After speaking of coffee—which cannot be too hot and strong, should be without sugar or milk, and taken on an empty stomach,—the author proceeds to consider alcohol, of the value of which he has often seen striking instances. The drawback to its use, however, is that it must be given, in large and increasing doses, and in a concentrated form, and, like coffee, hot.

Dr. Salter regards the inhalation of chloroform as one of the most powerful, as well as recent, methods of treating the asthmatic paroxysm. In thirteen cases in which he watched its employment, it did good in twelve, and in one positive harm. He regards the direct and immediate effect of chloroform as due to its unlocking the bronchial spasm, and setting the pulmonary circulation free, and he does not fear to use it in cases of organic heart disease. With regard to iodide of potassium, he says that, probably, in not more than one case in five is it of sufficient permanent advantage to be worth persevering in; but this amount of success is enough to warrant its trial in any case where this had not been fairly done, particularly as striking results sometimes attend its use.

We have not space to dwell longer upon this book, which contains an amount of information that can be obtained nowhere else; but we may call attention to some interesting cases of uterine asthma, and to others on the production of the disease by animal emanations. After all, the most curious circumstance connected with the disease is the way in which it is influenced by climate and locality.

*A Treatise on Physiology and Hygiene, for Schools Families, and Colleges*, By J. C. Dalton, M.D., Professor of Physiology in the College of Physicians and Surgeons, New York. With Illustrations. Small 8vo, pp. 399. London: Sampson Low, Son, and Marston. 1868.

This is an excellent manual. It it clearly written, and singularly free from technicality, without in any way being deficient in definiteness and accuracy. A better book for schools, where a general yet comprehensive knowledge of the physiology of man is alone required, could not well be desired. The work is freely illustrated by apt diagrams, and to each chapter is appended a series of questions.

M. Auzias Turenne on Rabies.—This ingenious investigator, in a paper lately read before the Academy of Medicine of Paris, endeavors to establish a parallel between the phenomena of rabies and those of syphilis. It will be remembered that Marochetti considered that the virus, after having been absorbed by the wound, enters the circulation, and then gathers under the tongue. From the third to the ninth day little vesicles or pustules appear on either side of the frenum linguæ; they contain the virus, and are called lyssæ. Marochetti believed that by cauterising these vesicles the further progress of the disease might be stayed. Experience has not confirmed his views; but M. Turenne, starting from these phenomena, has attempted to liken rabies to syphilis, and the lyssæ to the infecting chancre.

# Correspondence.

"Audi alteram partem."

## PARACENTESIS CRURIS.

*To the Editor of* The Lancet.

Sir,—In 1861 you inserted in your periodical a description of a method of relieving anasarca by deep puncture, which I ventured to submit to your notice as both novel and successful. A case of this kind has recently been attended with a result so unexpected and remarkable that it appears to me very desirable that it should be made known to the profession.

For reasons which need not be given, the report must be brief and confined to the fact about to be described, the more so as in other respects there was nothing unusual to be mentioned.

The patient, a lady aged about forty-five, was suffering from general anasarca caused by disease of the heart. The legs were enormously swollen and to such an extent that a large red patch appeared on each, plainly preparatory to their bursting. Any other than a raised position in bed had long been impossible, and nothing need be said as to shortness of breathing, &c.; the enlargement extended up to the loins and over the abdomen, and, in short, all the attendant circumstances were such as are usually present in these cases.

The operation was at once determined upon; but as the patient (simple as it is) felt the greatest alarm on its being proposed, my worthy coadjutor suggested that it should be done at first in one leg only; and as it seemed clear enough that when the water was let off from the right leg, and from all parts as far as the groin of the left, the unwieldy and irksome state of this latter limb would manifestly remove any reluctance to its being repeated, the puncture was accordingly made in the right foot.

On our visit the following day, besides the reduced size of the right leg, and the improvement in the breathing, we were pleasingly told that "the other thigh was a good deal softer." This we then attributed to fancy; but, to our surprise, at our next visit the enlargement in both legs had actually diminished in nearly the same degree. The relief, in truth, was in a few days almost as complete as if both legs had been operated upon and at the same time. The patient was able to lie down, and to move from room to room with ease, and even to go up and down stairs.

The only surprising point in this case is the fact of the water having ascended one leg, and made its way out at the other foot. By the ordinary law of gravitation this could not take place. Could it have been effected on the principle of the syphon? At all events, it seems that this accidental teaching suggests an improvement, and no unimportant one, of operating on one leg only.

I am, Sir, your obedient servant,
Charles Witt

Spring-gardens, Aug. 1868.

## A NOTE ON TORSION.

*To the Editor of* THE LANCET.

SIR,—As the time approaches for a full and dispassionate inquiry into the relative merits of the ligature, torsion, and acupressure, it is important that no considerable store of facts be overlooked; hence my anxiety to direct attention to the work of Professor Porta, of Pavia, to which some of our best-informed authors have only made incidental allusion at second-hand; while to the majority of surgical writers the greatest work of Scarpa's worthy successor appears to have remained entirely unknown; yet twenty-three years have elapsed since its publication at Milan, and upwards of twenty years since the French Academy awarded it one of the Monthyon prizes. The monograph is a handsome folio, of 439 pages, illustrated with 13 copper plates. I transcribe the title:—"Delle Alterazioni Patologiche delle Arterie per la Legatura e la Torsione, esperienze ed operazioni di Luigi Porta, Professore di Clinica Chirurgica nell' Università di Pavia. Milano: Tipografia di Giuseppe Bernardoni. 1845." The work contains the results of experiments on 270 animals, and of torsion of arteries in 65 operations on the human subject. The chapter on Torsion occupies 25 pages (138 to 163), and Professor Porta concludes with the statement that "torsion is preferable and perfectly safe in all moderate-sized arteries (arterie mediocri), and is generally, if not always, successful for the principal arteries of the extremities." (p. 163, *op. cit.*)

No surgical writer has been more neglected in this country than Porta; yet I have no hesitation in saying that for variety and profundity of learning for love of nature and acquaintance with books, for ingenuity in devising experiments and skill in conducting them, for mental power at once imaginative and judicial, Porta has had very few rivals in the history of surgery,

I am, Sir, your obedient servant,

SAMPSON GAMGEE.

Birmingham, Sept. 27, 1868.

## News Items, Medical Facts, &c.

AMPUTATION OF THE LEG BY A FLASH OF LIGHTNING.—A boy of twelve, belonging to Korsk (Western Russia), who used to walk with a crutch, on account of anchylosis of the right knee, was on horseback in the fields, when he was overtaken by a violent storm. After a severe clap of thunder, the horse ran away, and the boy, completely stunned, fell to the ground. When he returned to his senses, and tried to rise, he found that his right leg was gone. His uncle, who had ridden by his side, and his own horse, had disappeared. The poor boy, at first somewhat collapsed, fell asleep. His companion, however, at last returned after having secured the horse, and on examining his nephew he observed that the right leg was entirely wanting. The patient's shirt and clothes were in shreds, and burned along the seams, and on the body were many scars. The boy was conveyed to the village in a cart, suffering severely in the stump, and much alarmed at the hæmorrhage, which however soon stopped. A few days afterwards, Dr. Rogowitch found a regular wound as usually made by the amputating knife, surrounded with granulations, and presenting in the centre a few gangrenous spots. The division had been effected by lightning, through the superior extremity of the tibia, the patella and femur being intact. The healing of this wound took place very rapidly, and by the use of ordinary means. The severed leg was found on the grass, several days after the accident, just where the boy had been thrown from his horse. It was quite dried up, and emitted no smell, the tibia being quite black, and stipped half down the leg. These facts are mentioned in the *Berl. Klin. Woch*, No. 21, 1868, and guaranteed by Dr. Sycyanko.

THE history of another victim of the dissecting-room has been touchingly related by *L'Union Médicale*. A young extern of Lariboisière, a future *savant* perhaps, and at all events a brave-hearted fellow, has fallen a victim to his zeal for science. A patient, affected with a contagious disease, having died in the wards, he determined upon performing the autopsy. Dr. Duplay, the chief surgeon, had advised him to be most prudent. But Adrien Ccurtois was desirous of examining the lesions as nearly as possible. Courtois had a little pimple on the lip, but took no heed of the circumstance. He performed the autopsy, and had the pleasure of stating that he had formed a correct diagnosis. An hour afterwards he left the dissecting-room for his home, bearing death with him. Absorbed by his examination of the disease, he had touched the pimple with his finger. When he bethought him of his imprudence it was too late; he had only to prepare himself to die. His death was that of the just. He ended his days quietly, heroically without allowing his parents to suspect how grievous was his malady. He was only twenty-three years of age. Until the last moment, amidst the most terrible suffering, he concealed the dreadful secret in his breast. A large number of students followed him to his grave at St. Dennis. Tears droped from their eyes as they accomplished their melancholy pilgrimage. A touching discourse was delivered at his grave.

CLOT BEY.—A letter from a friend of this remarkable man, lately deceased, was published in *L'Union Médicale* of the 8th of September. Clot Bey was originally practising at Marseilles, and hardly making a living, when Mehemet Ali determined to call into Egypt people skilled in science, arts, or trades. Clot volunteered, and soon became a great favorite with the Viceroy. The great difficulty, when it was decided to establish a medical school, was about dissections of the human body. The opposition was immense. Clot Bey, however, overcame it, and was teaching anatomy on the subject, when (at least this is stated in the letter above-mentioned) one of the pupils, carried away by fanaticism, struck Clot Bey with a dagger. The blow glided along a rib, and the professor cooly took some court plaster out of his pocket, closed the wound with it, and went on demonstrating and remarking on the structure and direction of the ribs which caused daggers to glide. Clot Bey succeeded in settling the medical school upom a firm basis; he became a man of great note, amassed a large fortune, but never gave up either his religion or nationality.

AN UNFORTUNATE COUNTRY.—In January and February last a revolution caused the loss of many lives in Peru. Immediately afterwards yellow fever destroyed nearly a third of the inhabitants of Callao and Lima. The recent earthquake has destroyed three important Peruvian cities, and reduced more than 100,000 persons to the utmost destitution; and since the earthquake a fire has raged for several days in Callao.

THE name of "Faraday" has just been given to one of the streets of Paris. This tribute paid to the memory of our great chemist by a foreign Government cannot but be gratifying to the English mind.

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